

HOW TO INCREASE READING ABILITY

A Guide to Diagnostic and Remedial Methods

BY

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HOW TO INCREASE READING ABILITY

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To the Memory

of

MY FATHER

EDITOR'S INTRODUCTION

There are few short words in our language which carry more or even as much terse expression of real need as "how," "who," "when," and "why."

How to Increase Reading Ability. Notice, if you please, the title of this book. This title is a promissory note, back of which is ample security by way of author ability, author experience, and a fine example of practical scholarship. This book "grew" on the editor and his advisers as it was read in manuscript. *How to do anything in school—worth doing at all—suggests a real need of teachers. To do with skill, with economy, with the light touch, is the aim of all of us.*

In the summer of 1939 this text was used in Summer Session classes by teachers at work on keeping themselves ready to teach. That it served the purposes of one group of experienced teachers on the Purdue campus, the editor vouches for personally.

Who are to assist youngsters in need of greater reading ability? Many, of course. Some at long range, but the face-to-face help is rendered by the class room teachers themselves. This book is for the teacher. It contains what the teacher, as a face-to-face helper, needs to know to measure skill, to accomplish with economy, to make work appetizing through the light touch.

When should this book be used? Groups of teachers in systematic courses will find the present text a substantial and satisfactory treatment of an important topic. Over and above this purpose the teacher will use this book whenever information on how to diagnose or remedy reading weakness is incident. It is the kind of book that teachers will naturally keep on their class room desks rather than on the shelves of their libraries at home.

Why education of the young in a democracy must be notable for its success in creating a practically universal ability to read is obvious. In many ways a citizen, man or woman, rich or poor, well or sick, young or old, strong or weak, is hopelessly handicapped by reading disability. The high hope is that this book may do its bit in maintaining and increasing a genuine ability to read and a preference for doing so on the part of future citizens. By helping teachers guide pupils away from reading disability toward reading power the book "pulls its own weight" and more as we and our pupils together face today and tomorrow.

F. B. KNIGHT

FOREWORD

When I began teaching remedial reading several years ago, I found it difficult to locate a suitable basic text or reference work. There were several good books available, but they were either accounts of research or expositions of the author's own ideas about how remedial work should be done. That situation has not changed. My students—elementary school teachers, secondary school teachers, school psychologists, teachers of special classes for the mentally and physically handicapped, and teachers already engaged in remedial work—felt the need of a book that would deal with diagnostic and remedial reading in a comprehensive, impartial, and practical way. The writing of this book was undertaken in the attempt to fulfill that need. It has been used in an experimental mimeographed edition with three successive groups of students and has been re-written in the light of their criticisms and the suggestions of others who have read it.

My obligations are many. I owe a great debt, first of all, to the many research workers whose efforts are responsible for what we now know about reading. It has not been feasible to mention even the majority of the books, monographs, and periodical articles consulted, as that would have made the book unwieldy. The excellent summaries of the literature on reading published annually by Dr. William S. Gray in the *Journal of Educational Research*, the *Elementary School Journal*, and the *School Review* make exhaustive documentation superfluous, in any case.

My second great obligation is to my students, from whom I have learned at least as much as they have learned from me. Their debates with me on controversial issues

and their experiences in trying out ideas have helped me clarify and crystallize my thinking. Most of the case studies and illustrations that are included are based on hitherto unpublished work done by them.

For reading the experimental edition and for helpful comments and suggestions I am indebted to Dr. Frederick B. Knight, Editor of this series, to Dr. Paul Klapper, President of Queens College, and to my colleagues, Professors Harry N. Rivlin, Arthur Mallon, Harold H. Abelson, and Samuel Streicher. They have contributed many valuable ideas, both with regard to content and to style. Dr. Bernard Fread, Instructor in Ophthalmology at the New York University Medical School, has contributed a number of ideas to the section on vision. My wife has been an invaluable assistant, not only as a source of inspiration and encouragement but also for her practical judgment, based on varied teaching experience. Thanks for careful and accurate work are due to Gertrude Wolfson, my clerical assistant, and to Stella Irving and Louis Lerman, who did the drawings. Acknowledgements to the many publishers who graciously gave permission to reproduce copyrighted materials are made within.

ALBERT J. HARRIS

New York City
Jan. 6, 1940

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HOW TO INCREASE READING ABILITY

CHAPTER I

THE SIGNIFICANCE OF READING DISABILITIES

I. THE IMPORTANCE OF READING

Every September in the United States over two million six-year-old children leave their homes on a great adventure. They are going to school for the first time. Most of them are eagerly looking forward to learning how to read. Reading is, to them, a mysterious ability by means of which their elders can look at queer black marks on paper and get from them interesting stories. They are thrilled at the thought of being able to read by themselves.

Months pass by. Some of the children have made rapid progress, bask in the approval of their teachers, and love school. To others reading remains as mysterious as when they entered. About one in every five (in some schools, as many as two in every five) will not be promoted at the end of the term or year, and will experience their first bitter taste of failure. In some schools they will be promoted in spite of their lack of progress in reading, but unless special steps are taken to overcome their difficulties, they will fall farther behind as they go up through the grades. Their classmates will make remarks about their stupidity, and their parents will comment in unpleasant terms about poor report cards.

As he gets older, the poor reader is increasingly handi-

capped by his difficulty. He is practically certain to repeat grades, and if he gets into high school, he is almost sure to leave without graduating. Desirable occupations requiring high school or college training will be closed to him. He will be to a large extent cut off from cultural activities and will find it difficult to mingle with educated people. He may develop, in self-defense, a sneering attitude toward literature and learning of all kinds. In some cases he may progress by easy stages from dislike for school to truancy, to association with undesirable companions and eventually to a career of crime.¹ There is no doubt that the poor reader is seriously handicapped in our present complex civilization. Although radio, talking pictures and television may lessen his difficulties, reading ability is an essential requirement.

It is not from lack of effort that we so often fail to teach children how to read. Our schools are increasingly recognizing the gravity of this problem, and today are devoting more attention to reading than ever before.² More time is spent on reading in the first grade than on any other subject. In a survey of fifty cities, it was found that the average teacher in the first grade spent about 30 per cent of the time on reading; some spent as much as 50 per cent.³ More money is spent on reading materials in the elementary school than on any other subject. According to one study, the cost of reading in the first six years of school is more than the combined cost of any two other subjects.⁴

Reading is not only the major elementary school sub-

¹ P. Fendrick and G. Bond, Delinquency and Reading. *Journal of Genetic Psychology*, vol. 48, 1936, 236-243.

² E. Boykin, Reading Gains in Pedagogical Importance. *Education*, vol. 58, 1938, 350-352.

³ Helen P. Davidson, An Experimental Study of Bright, Average, and Dull Children at the Four Year Mental Level. *Genetic Psychology Monographs*, vol. 9, 1931, nos. 3, 4.

⁴ John A. O'Brien, *Reading: Its Psychology and Pedagogy*, p. 20 (D. Appleton-Century Co., New York, 1926).

ject from the standpoint of time and expense, but it is also the major cause of retardation. It was formerly true that 30 to 40 per cent of first grade children repeated the year. While the proportion of children repeating grades has dropped in recent years, it is still true that more children fail in the first grade than in any other grade. And nearly all failures in the first two grades are due to reading. Even as high as the seventh and eighth grades as many as 20 per cent of failures are directly attributable to poor reading.⁵

Individual Differences in Reading Ability

In most schools the children in a single grade show an astonishingly wide range of reading ability. It is not unusual to find in the upper elementary grades some children who are still reading at primary grade levels, while others are superior to the average high school senior.

New York City has for several years given standardized reading tests to those about to enter junior or senior high school. The results of one of these surveys are shown in Table I. The median reading grade for the 19,063 pupils who took the test one month before completing the eighth grade in elementary school was 9.14, about one month better than the nation-wide average. The range, however, was tremendous, extending from below third grade up to the college level. Although 20 per cent made scores above the tenth grade level, 31 per cent were below the eighth grade level and 20 per cent were below the seventh grade level. Such a diversity of ability in those entering high school obviously creates a very serious educational problem.

That these results are typical rather than unusual be-

⁵ H. L. Caswell, Non-Promotion in the Elementary School. *Elementary School Journal*, vol. 33, 1933, 644-647. W. P. Percival, *A Study of the Causes and Subjects of School Failure*, unpublished doctor's thesis, Columbia University, New York, 1926.

TABLE I

DISTRIBUTION OF READING SCORES OF PUPILS ENTERING SENIOR HIGH SCHOOLS FROM ELEMENTARY SCHOOL 8B CLASSES, NEW STANFORD ACHIEVEMENT TEST, FORM V. December 21, 1938, New York City*

<i>Score</i>	<i>Average Reading Age Equivalent</i>	<i>Average Reading Grade Equivalent</i>	<i>Frequency</i>
126-129	20		6
122-125	19		37
118-121	19		208
114-117	18		615
110-113	17-3		1117
106-109	16-7		1785
102-105	16-1	10.+	2455
98-101	15-5	9.6	2597
94-97	14-11	8.9	2230
90-93	14-2	8.3	2069
86-89	13-6	7.7	1723
82-85	12-10	7.1	1414
78-81	12-5	6.6	982
74-77	11-11	6.1	729
70-73	11-7	5.7	522
66-69	11-3	5.4	272
62-65	10-11	5.0	155
58-61	10-7	4.6	82
54-57	10-4	4.4	29
50-53	10-0	4.1	12
46-49	9-9	3.9	10
42-45	9-5	3.6	5
38-41	9-2	3.4	8
34-37	8-10	3.2	0
30-33	8-6	3.0	0
26-29	8-1	2.8	1
			19063

* The writer is indebted to Assistant Superintendent Benjamin B. Greenberg of the New York City Schools for the data contained in this table.

comes apparent when the results of other school surveys are considered. In a study reported by Gray,⁶ results from a reading survey of nearly 6000 pupils in the ninth grade of a Chicago suburb are presented. In this group 7 per cent were reading at the sixth grade level, 6 per cent at the fifth grade level, 5 per cent at the fourth grade level, and 4 per cent at the second and third grade levels; a total of 22 per cent with reading ability below the seventh grade, which Gray considers to be the minimum necessary for satisfactory high school work. Another informative survey has been described by Stone,⁷ who gave the New Stanford Reading Test to all of the children in the low sixth grade of a small city in the southwestern part of the country. The group as a whole was somewhat above average, about 1.5 months above the nation-wide median. However, only 31 per cent were within one term (above and below) of their grade placement, and only 51 per cent were within one year of it. Eighteen per cent were more than a year below their grade, and 31 per cent were more than a year above. The scores ranged as low as the second grade and as high as the tenth grade.

Wide differences in reading ability are also found among adults. Buswell⁸ has reported a thorough study of the reading ability of nearly a thousand adults, selected so as to give an approximate cross-section of the adult population of Chicago in regard to education, occupation, age, and race. As one might expect, the scores of the best readers were very much higher than those of the poorest readers. A marked relationship was found to exist between reading ability and education. Less than

⁶ W. S. Gray, *The Nature and Extent of the Reading Problem in American Education*. *Educational Record*, Supplement No. 11, vol. 19, 1938, 87-104.

⁷ Clarence R. Stone, *Better Advanced Reading*, p. 20 (Webster Publishing Co., St. Louis, 1937).

⁸ Guy T. Buswell, *How Adults Read*, Supplementary Educational Monographs, No. 45 (University of Chicago, Chicago, 1937).

two per cent of those whose education stopped at the sixth grade or below scored as high as the median person who went beyond the second year of high school.

When the best one hundred readers were compared with the poorest hundred, great differences between the groups in reading habits were also disclosed. Although the great majority of the poor readers said that they read newspapers regularly, only 22 per cent said that they read magazines regularly, and only 12 per cent said that they read many books. Nearly half of this group reported that they read no books at all. The kind of reading done was also significant. The most popular magazines among the poor readers were those dealing with love and adventure, with *True Story Magazine* and *Detective Story Magazine* heading the list. In contrast, more than two thirds of the good readers reported that they read magazines and books regularly. The quality of their reading was much higher than that of the poor readers. Magazines of news comment and discussion and serious monthlies headed their lists, with the *Reader's Digest* and *Time* the two most popular choices. It seems evident that large sections of our adult population do little or no serious reading.

The Frequency of Reading Disabilities

The surveys that have just been described show clearly that a large proportion of the children and adults in this country are seriously retarded in reading ability. By no means all of these retarded readers are cases of reading disability, however. Large numbers of them are simply too dull to make normal progress in reading or any other academic subject. In trying to find out how common reading disabilities are, it is necessary to distinguish between those of low intelligence and those who are mentally normal but have failed to learn how to

read well. It is customary to regard as disabled readers only those whose reading ability is well below their potentialities for learning, as disclosed by intelligence tests. If this is done, a very bright child whose reading ability is only slightly below the average for his age should be regarded as a reading disability case, while a dull child with the same ability in reading should be considered to be reading up to expectation. When the factor of intelligence is taken into account, the available statistics indicate that as many as 10 to 15 per cent of public school pupils are suffering from disabilities in reading.

For some unknown reason boys are more subject to difficulty in the learning of language and reading than girls. The superiority of girls over boys in speech is marked even in the preschool years.⁹ Stuttering is found in boys several times as often as in girls,¹⁰ and the same general proportion seems to hold in reading disabilities also. In three groups of reading disability cases, Monroe¹¹ found that boys constituted 84, 86, and 94 per cent of the cases. Witty and Kopel,¹² who selected for experimental study the hundred poorest readers of normal intelligence in the intermediate grades of a small city, found themselves with a group of 66 boys and 34 girls. Other investigators have reported results between these extremes. No adequate reason for this interesting sex difference has yet been found.

The Possibilities of Improvement in Reading

There is every reason to be optimistic about the results that are obtainable from devoting special attention

⁹ George D. Stoddard and Beth L. Wellman, *Child Psychology*, p. 156 (The Macmillan Co., New York, 1934).

¹⁰ Norma V. Scheidemann, *The Psychology of Exceptional Children*, p. 91 (Houghton Mifflin Co., Boston, 1931).

¹¹ Marion Monroe, *Children Who Cannot Read*, p. 98 (University of Chicago Press, Chicago, 1932).

¹² P. A. Witty and D. Kopel, Heterophoria and Reading Disabilities, *Journal of Educational Psychology*, vol. 27, 1936, 222-230.

to the improvement of reading ability. It is common to find an improvement of a full year or more in reading ability as a result of a few weeks of intensive remedial instruction. Many remedial teachers consider their work ineffective if the pupil does not improve in reading ability at least twice as fast as normal pupils with the equivalent amount of conventional instruction. Individual cases are known in which improvement amounting to three or four years of normal gain was attained in one year. Naturally the amount and rate of improvement is related to the seriousness of the child's handicap, to the child's intelligence, and to the adequacy of the instruction.

The work of the W.P.A. Remedial Reading Project in New York City is an example of what has been done on a large scale. A staff of several hundred remedial tutors, few of whom had any previous experience in remedial work, was assigned to the project and given training on the job. The pupils given attention were selected by their regular teachers as being very poor readers. A program of diagnostic testing and remedial teaching was worked out, which relied mainly on individual tutoring. The number of pupils handled was approximately 11,000 in 1934, 16,000 in 1935, 16,000 in 1936, 15,500 in 1937, and 14,500 in 1938. During this time 22,100 children improved enough to be reinstated in their normal grades.¹³ At the present writing this project is still active.

Potentialities for marked improvement are present in average and superior readers as well as in poor readers. Many studies have shown that paying attention to the improvement of reading in normal classes brings returns in the form of more than average improvement. The

¹³ These data were supplied by the Board of Education Project, U. S. Works Projects Administration for the City of New York.

results reported by Worlton¹⁴ may be cited as fairly typical. A carefully planned teaching procedure, in which attention was given to the reading needs of each pupil, was tried out in a few classes in each grade from the third to the seventh in Salt Lake City. The reading proficiency of the pupils was tested at the beginning of the experiment and re-tested seven months later. The smallest average gain made in any grade was eight months; five of the six grades showed gains of a full year or better; and three of the grades showed better than twice the normal amount of improvement.

When the principal of a school takes pride in the fact that his school is "up to the norm" he really has nothing about which to boast. The norm on a standardized test does not represent a high standard of achievement, but merely indicates average attainment. It represents the performance of the average pupil among thousands tested in schools scattered all over the country, and so indicates the typical attainment of a mediocre pupil under mediocre instruction. With the use of superior methods of instruction, performance well above the present norms may be expected from normal pupils.

Reading and Other School Subjects

It is only natural that proficiency in reading should be found to be closely related to school success. The fast, accurate reader possesses a valuable tool that lays open to him the vast storehouse of knowledge that lies between the covers of books. The poor reader either reads so slowly that he has not time to read much, or reads so inaccurately that he is little better off when he has finished than when he started. He must depend to a large extent on what he can learn by listening. In conse-

¹⁴ J. T. Worlton, *Individualizing Instruction in Reading*, *Elementary School Journal*, vol. 36, 1936, 735-747.

quence he tends to fall behind in subjects that require reading.

Not all school subjects are related to reading. Music, drawing, physical training, and the various kinds of hand-work such as sewing, weaving, carpentry, etc., all show little tendency to be influenced by reading ability. This is to be expected, since little or no reading is done in these subjects. But arithmetic, spelling, writing, composition, and all of the content subjects that require the use of books are related to reading ability.

Arithmetic problems are usually presented in written or printed form, and so have to be read before they can be solved. It is obvious that a pupil who cannot read well may be completely helpless when given a problem to be read, even when he might be able to solve it easily if it were given to him orally. There is in general a high correspondence between good problem solving and good reading ability, although some good readers are very poor at solving arithmetic problems.

The mastery of arithmetic fundamentals—addition, subtraction, multiplication, and division—is not nearly so dependent upon reading as problem solving is. Most of the early work of mastering combinations is done orally. Later, when most of the computation is done from written examples, it is found that many poor readers have no trouble with reading numbers, and make normal or superior progress in arithmetic. Monroe has found the arithmetic computation ability of 415 reading disability cases to average about one and a half grades better than their reading ability.¹⁵ This does not mean that the poor readers as a group were above average in arithmetic, but simply that they were not as bad in arithmetic as they were in reading. Elsewhere Monroe has presented an interesting illustration of how a reading

¹⁵ Marion Monroe, *Children Who Cannot Read*, p. 14.

defect may interfere even with the simplest arithmetic. A child was asked to multiply 6 by 4, and returned the surprising answer of 87. Not being able to remember the answer, he tried to multiply 6 by 3 and add 6. This would have succeeded ordinarily, but the child had a tendency to read things backwards, and so wrote down 81 instead of 18. When he added 6, he obtained 87 as his answer.¹⁶ Reading disability may, then, interfere with both computation and problem solving, although it has a more serious effect on the latter.

The ability to recognize and remember words is fundamental to both reading and spelling. The child who finds it difficult to recognize a word when he sees it is apt to have even more difficulty trying to reproduce its sequence of letters from memory. Reading and spelling are closely associated because many of the abilities required for one are also required for the other. Monroe reports that the relation between reading ability and spelling ability is even higher for poor readers than for normal readers; her correlations are .85 and .81 respectively.¹⁷ This means that the vast majority of reading disability cases are also extremely poor spellers. Analysis of a pupil's errors in spelling often helps in understanding his reading difficulties, and remedial teaching in reading and spelling can often be carried on together with profit to both.

In contrast to the close relation between reading and spelling, reading and penmanship are not closely allied. Some retarded readers produce illegible scrawls; the same difficulties that prevent them from seeing words clearly when they try to read interfere with their attempts at written reproduction. Some poor readers have poor general control of their muscles, and show the same clum-

¹⁶ M. Monroe, Remedial Treatment in Reading, *Elementary English Review*, vol. 10, 1933, 95-97, 112.

¹⁷ Marion Monroe, *Children Who Cannot Read*, p. 13.

siness in writing as in other activities. However, it is not at all unusual to find poor readers whose handwriting is neat and legible, or good readers whose penmanship is atrocious.

Reading and composition are each dependent upon the other. Wide and extensive reading broadens the child's range of knowledge, enriches his vocabulary, and provides him with desirable models of style that he can imitate. On the other hand, a lack of ability to understand and use good English will naturally handicap a child in understanding what he reads. Children are sometimes found whose good spoken English stands out in sharp contrast to poor reading ability; these children often make very rapid improvement under appropriate remedial treatment.

As soon as children start to use text-books, reading disability becomes a general handicap. The large amount of oral work done in the elementary school makes it possible for some poor readers to do acceptable work in content subjects. The higher up these children go, however, the more important the study of books becomes. In the upper grades such studies as history and geography are seriously affected by poor skill in reading.

An investigation by Lee¹⁸ has demonstrated clearly the importance of reading for general scholarship in elementary school. Six tests of reading ability were given to pupils in the fourth, fifth and sixth grades, and the results were correlated with an achievement score obtained from the *Modern School Achievement Tests* (in getting this score, the reading sections of the tests were omitted). Even after the influence of intelligence was eliminated, substantial relationships between reading and general achievement remained. From her results Lee concluded

¹⁸ Doris M. Lee, *The Importance of Reading for Achieving in Grades 4, 5, and 6*. Contributions to Education, No. 566 (Bureau of Publications, Teachers College, Columbia University, New York, 1933).

that reading ability of low fourth grade level is a minimum requirement for satisfactory work in these grades.

Reading ability is important for scholarship in secondary school as well as in elementary school. This has been clearly shown in a careful study by Bond.¹⁹ She gave a number of reading tests and also standardized achievement tests in all subjects to three hundred ninth grade pupils. A suitable statistical method was used to make sure that the results were not influenced by differences in age or intelligence. General reading comprehension was found to be significantly related to average scholarship and to all separate subjects except mathematics. Evidence was also obtained that the reading abilities essential to achievement differed considerably from one subject to another. For instance, fast readers excelled slow readers in tests of vocabulary and literary acquaintance, but the slow readers had a slight advantage in general science, spelling, and mathematics. Bond concluded that there is a definite need for teachers of the content subjects to instruct their pupils in the particular reading skills that are important in the study of their subjects.

II. WHY CHILDREN FAIL IN READING

Except for the extremely feeble-minded, every child can learn to read. The blind and the deaf do not learn by the same methods as the normal child, but they can be successfully taught with appropriate special methods. The apparently normal child who does not learn to read by conventional methods will also succeed when proper instruction is given. A few years ago many children were labelled with the impressive term "congenital word-blindness." This term, which was commonly used in describing reading disability cases, implied that the child

¹⁹ Eva Bond, *Reading and Ninth Grade Achievement*. Contributions to Education, No. 756 (Bureau of Publications, Teachers College, Columbia University, New York, 1938).

was born with an inability to learn to read. Such an idea tends to encourage the fatalistic attitude that nothing can be done for these children. There is no longer any excuse for taking refuge in such a defeatist attitude. The causes of reading disabilities are fairly well known and good remedial methods are available.

There is no one cause of reading disability. The general result of the large number of investigations that have attempted to find the causes of reading difficulties is that there are many handicaps which are found more frequently in poor readers than in good readers. None of these handicaps will of itself necessarily prevent a child from becoming a normal reader, but any of them may, in an individual case, interfere seriously with the child's learning. When we investigate a case thoroughly we usually find evidence of a number of factors, each of which may have been important in the creation of his disability.

Lack of Reading Readiness

It has become increasingly evident in recent years that a great many children get off to a poor start because they are not ready to profit from instruction in reading at the time they enter the first grade. In another year or so they will be able to make good progress in beginning reading, but now they are bewildered by its complexities. Forced to compete with children who are making normal progress, they soon become aware of their lack of success. This brings on a feeling of frustration and failure which is likely to interfere with their further efforts, and also may have an undesirable effect on their personalities in general.

Reading readiness is not a single trait but a condition of general preparedness or maturity, in which many different factors are involved. Among these are mental

development, background of experience, mastery of speech, social maturity, muscular coordination, and ability to perceive similarities and differences.

Children differ tremendously in their rate of mental development. Many first grade entrants have not yet attained a level of mental maturity sufficient for satisfactory reading. They have short memory spans and poor power of concentration, and have difficulty in understanding and following directions.

Immaturity for reading may also be the result of an unstimulating environment. Some children come to school without ever having gone more than a mile or two from their homes, without ever having seen a zoo, a boat, or a circus, without ever having looked inside the covers of a picture book or having had a story read to them. Their limited experience naturally results in a scanty vocabulary and a restricted stock of ideas.

Many children, especially in our large cities, come from homes in which a foreign language is spoken. When they enter school their English is limited to what they have picked up on the streets. They are almost in the same situation that an American child would experience if he entered the first grade of a French school with only a smattering of French. They naturally are greatly handicapped in reading because of their language deficiencies.

Immaturity may be found in the personality and social development of the child. He may be shy and timid, and afraid to open his mouth in class or take part in group activities. He may be fidgety and inattentive and unable to keep his mind on what the class is doing.

Backwardness in the development of perceptual discrimination or muscular coordination also may hinder the beginner in reading. Some children have difficulty in noticing the difference between two pictures or in

hearing the difference between two sounds. They may be unable to articulate clearly or may have infantile speech. Lack of muscular coordination may be shown in clumsiness in handling pencil, crayon and scissors, or more specifically in the lack of ability to follow a line with the eyes.

Whatever the reason for his backwardness, the child who has not developed readiness for reading will fail to make normal progress. Special methods of dealing with such children must be used if they are to be prevented from failure. The problems of reading readiness are treated in detail in Chapter III.

Special Handicaps

Defects of vision and hearing naturally may interfere with learning to read. If eyesight is poor, the child gets a blurred picture instead of a sharp, clear one. This may not interfere with most of his activities, but it may handicap him in reading, which requires accurate perception of printed letters that are all of about the same size. The child who does not hear well will confuse words that have somewhat similar sounds, and so will have difficulty in associating the printed symbol with the right spoken word.

Much attention has been paid in recent years to the theory that difficulties in reading are caused by a lack of "cerebral dominance" or definite superiority of one side of the brain over the other. This is said to be found in children who are not consistently right-sided or left-sided, or in children who are naturally left-handed but have been trained to use the right hand. The evidence on this theory indicates that it is significant in at best only a small proportion of reading disability cases. For a more complete discussion of these special handicaps the reader should consult Chapter VI.

Emotional Handicaps

It is generally recognized that education should not be considered a process of forcing knowledge into a child, but one of guiding the child in learning. Effective learning takes place only when there is a desire to learn and an interest in what is to be learned. Although most children are eager to learn to read when they enter school, some are indifferent and a few are antagonistic. Occasionally children come to school with a hostile attitude to reading already established as a result of attempts by their well-meaning parents to teach them to read at the age of three, four, or five. One child likes to have stories read to him so much that he makes no effort to learn to read by himself. Another is ridiculed for mistakes made in the first few lessons, and develops a dislike for reading as a result. A third has been so babied and sheltered at home that he is completely bewildered by the school situation. Still another is prevented by extreme shyness from engaging in the activities of the class. Inadequate motivation or emotional blocking is found in most cases of reading disability that are studied clinically. In many it may be a reaction to prolonged failure, but in at least some cases it is one of the important causative factors.

Accidental Interference with Learning

As every teacher knows, frequent or prolonged absence interrupts the learning process and may be a severe handicap to a child. For the mastery of reading, this is especially true in the first and second grades. In these grades basic skills are being developed and the work is usually arranged in a carefully graded sequence. Most absence of any long duration is caused by illness. Frequent short absences, caused by a series of colds or sore throats or a

chronic condition such as asthma, may be just as serious a handicap.

It is equally obvious that frequent changing of schools is unsettling to a child. One of the writer's cases was in five different schools and had a dozen different teachers in the space of three years. It is no wonder that he had trouble with reading. When a child enters a class in the middle of a term he has a difficult adjustment to make. His new teacher is apt to employ quite different teaching methods and to use different books, the vocabulary of which is strange to him. No sooner does he get started on one plan of learning than he must drop it and try another, with the added disadvantage of not starting at the beginning.

Poor Instruction

In 1896 a survey of one county in Connecticut showed that 36 per cent of the 2,800 children tested were inadequate readers. Almost a fourth of those unable to read were more than eight years old. The prevailing method used by the teachers in that county was the antiquated "alphabet" method, which even at that time had been discarded by up-to-date schools.²⁰ While most teachers now employ methods that are far superior to those disclosed in this pioneer survey, there is still much wasteful and ineffective teaching.

Many teachers today have not changed their methods of instruction at all since they graduated from training school. Many supervisors are not yet acquainted with the excellent basic recommendations made by the National Committee on Reading back in 1925.²¹ There is unfortunately a lag of many years between the develop-

²⁰ Fowler D. Brooks, *The Applied Psychology of Reading*, p. 5 (D. Appleton-Century Co., New York, 1926).

²¹ *Report of the National Committee on Reading*, 24th Yearbook of the National Society for the Study of Education, Part I (Public School Publishing Co., Bloomington, 1925).

ment of better procedures and their general introduction in the schools. With the further development and adoption of improved methods of reading instruction, the need for remedial teaching as a special procedure will diminish. In fact, one of the major developments of the past few years has been the inclusion of individualized teaching and remedial procedures into the regular class methods.

We can say, then, that most cases of reading disability are not caused by special types of deficient learning ability, but arise from relatively simple causes such as mental or social immaturity, sensory handicaps, poor motivation, frequent or prolonged absence from school, and exposure to teaching which is inefficient and ineffectual. The task of the teacher is to find out what difficulties are present in each case, and then to apply common sense to the problem of overcoming the pupil's handicaps and teaching what he has not learned.

SUGGESTED ADDITIONAL READING

- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Ch. I (The Macmillan Co., New York, 1935)
 Emmet A. Betts, *The Prevention and Correction of Reading Disabilities*, Ch. I (Row, Peterson and Co., Evanston, 1936)
 Marion Monroe and Bertie Backus, *Remedial Reading*, Chs. I and II (Houghton Mifflin Co., Boston, 1937)

CHAPTER II

HOW THE NORMAL CHILD LEARNS TO READ

I. THE NATURE OF READING

Reading is one of the most complex skills that mankind has developed. Before the invention of printing only a favored few learned to read and write; today illiteracy is as rare as literacy used to be. The basic task in reading is to discover the meaning intended by the author. Before adequate comprehension is possible, there must first of all be understanding of spoken language. The printed equivalents of spoken words must then be learned so that they can be distinguished from one another and recognized quickly and accurately. The eyes must learn to work together in precise coordination and to follow the printed symbols quickly and rhythmically across the page. Good understanding is the end result of this complex process.

The efficient reader must be able to recognize the printed symbols, to move his eyes effectively across the page, to read with reasonable speed, and to understand what he reads. These four factors—word recognition, eye movements, speed and comprehension—are fundamentally important, and their significance must be understood by anyone concerned with the teaching of reading.

Word Recognition

To the child who is beginning to read, words look very much alike. If not carefully guided, he may, through trial and error, develop poor methods of word recognition. Even bright children may hit upon very ineffective procedures if left to their own devices.

The poor reader often needs to look at a word several times, and then may get it wrong. He may look at the middle or end first, thus seeing the letters in the wrong order. He may look only at a part of the word and ignore the rest of it. He may spend time in a futile hunt for unusual details, as one child did after he noticed the tail on the end of the word "monkey." He may know the sounds of only a few of the letters of the alphabet. He may make a wild guess and go on to the next word, or skip it entirely. He may stumble, repeat, or give up without making any attempt to pronounce the word.

The good reader, on the other hand, has a large stock of words which he can recognize at a glance. When he meets an unfamiliar word he can puzzle it out without assistance. Since he does not have to spend much time or energy on deciphering words, he is able to concentrate his attention on the sense of what he is reading.

Skill in word recognition is a fundamental and essential part of the equipment of a reader. Without adequate word recognition techniques a pupil will be handicapped in all other aspects of reading. Careful training in word recognition skills is a basic part of the teaching of reading.¹

Eye Movements

In 1878 a French physician named Javal published the first account of systematic observations of the movements of the eyes during reading. His work stimulated others to work on similar problems, and by 1908, when Huey published the first important book on the psychology of reading,² a considerable store of information had been gathered. The early investigators were handi-

¹ The analysis of methods of word recognition is treated in Chapter V, and procedures for improving word recognition are described in Chapter IX.

² Edmund B. Huey, *The Psychology and Pedagogy of Reading* (The Macmillan Company, New York, 1908).

capped by clumsy, awkward, and sometimes painful apparatus, such as fitting a hollow plaster cup over the eye-ball and attaching it by a string to a revolving drum. After Dodge invented a camera for photographing eye movements many important studies were made, notably by Dr. Buswell at Chicago.³ Until recently these cameras were available in only a few laboratories, but a portable eye-movement camera called the *Ophthalm-O-Graph* is now commercially available.⁴ This instrument is shown in Fig. 1.

When a person reads, his eyes do not move steadily along the line of print, but progress in a series of alternating pauses and quick jerky movements. The pauses, which are called *fixations*, last only a fraction of a second each. The eyes see in reading only during the fixations. When one comes to the end of the line there is a smooth continuous movement back to the beginning of the next line. This is called a *return sweep*.

The efficient reader does not look at each letter separately as he reads, but usually sees one or two words at each fixation. The amount a reader can see at one fixation is called his *recognition span*. The more he can see at one fixation the fewer fixations are made. Sometimes the eyes move backwards to get a second look at something that was not clearly seen. Such a backward movement is called a *regression*. Good reading is characterized by a wide recognition span, a small number of fixations per line, and a small number of regressions.

The way eye movements are represented on a photograph is illustrated in Fig. 3. The camera contains a roll of moving picture film which unrolls at a steady speed. A thin beam of light shines on each eyeball and

³ Guy T. Buswell, *Fundamental Reading Habits: A Study of Their Development*. Supplementary Educational Monographs, No. 21 (Department of Education, University of Chicago, Chicago, 1922).

⁴ Manufactured by The American Optical Co.

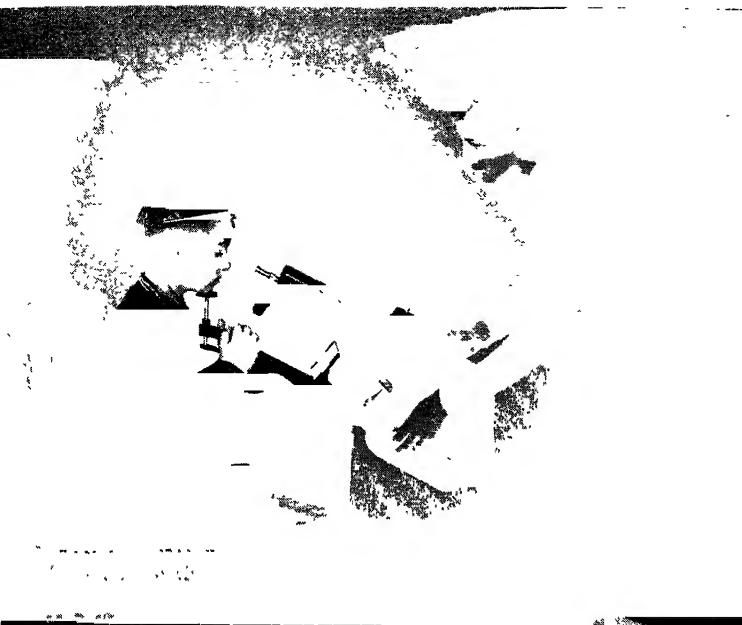


Fig. 1. The *Ophthalm-O-Graph* in use. Courtesy of the American Optical Co.

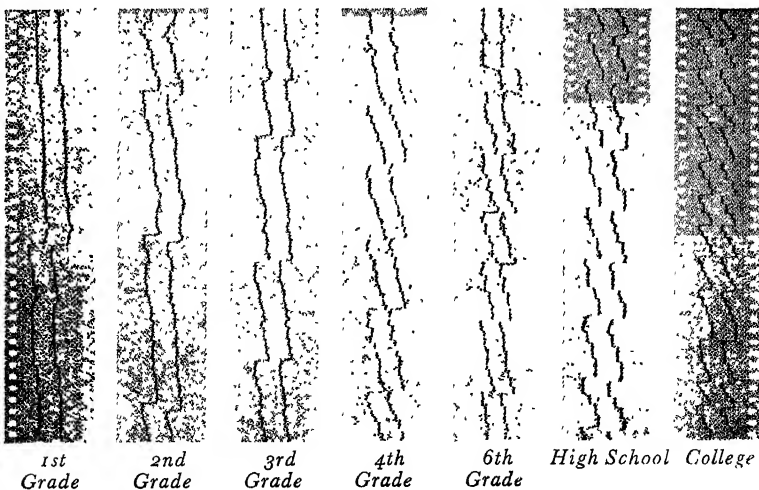


Fig. 2. Samples of eye-movement photographs. Reproduced from A. E. Taylor, *Controlled Reading*, p. 128, by permission of the University of Chicago Press. Illustration supplied by the American Optical Co.

is reflected onto the film. When the eye moves sideways between fixations, the turning of the eyeball shifts the beam of light so as to record an almost horizontal line on the film, and when the eye is motionless during a fixation, the unrolling of the film causes a vertical line to be made. The movements of both eyes are photographed simultaneously on the film, and their parallel movements give a sort of descending staircase effect. The duration of each fixation is shown by the length of the vertical line and the amount of print taken in during a fixation is indicated by the length of the horizontal line representing the movement between fixations. A regression is shown by a short horizontal movement to the left, and a return sweep from the end of one line to the beginning of the next line is shown by a long horizontal movement to the left.

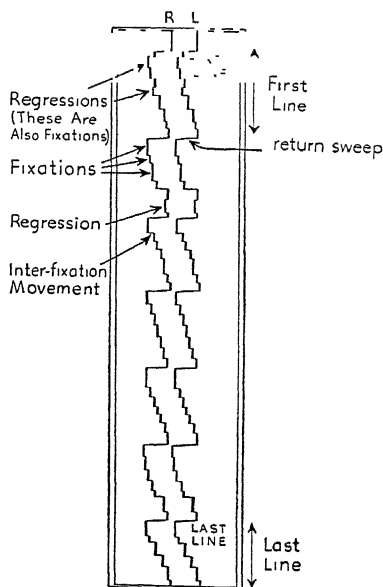


FIG 3. Diagram showing how eye-movement characteristics are represented in a photograph, reproduced by courtesy of the American Optical Co.

Eye movement photographs showing the progress in reading skill from the first grade to college are shown in Fig. 2. Comparing the college reader with the second grade pupil, it is easy to note the much greater speed, the greater regularity, the shorter duration of fixations, the wider recognition span, and the smaller number of regressions in the college record. Looking from left to

right, we get an impression of steady improvement from grade to grade in all of these respects. Many reading disability cases are unable to do as well as the first grade pupil whose record is shown.

Average performances, as determined by Taylor from photographs of the reading of over two thousand students, are shown in Table II. The first grade child makes an average of two and a half fixations a word while the college student averages more than a word to each fixation. Regressions decrease from an average of

TABLE II. EYE-MOVEMENT NORMS

Grade	High 1st	2nd	3rd	4th	5th	6th	7th	High School	Col- lege
Fixations per 100 words	250	200	175	140	125	120	115	93	80
Regressions per 100 words	60	50	40	30	25	23	21	17	10
Words read per minute	55	90	115	168	190	200	210	295	325

Adapted from A. E. Taylor, *Controlled Reading*, 1937, p. 126, by permission of the University of Chicago Press.

two in every three words to one in ten words. Speed of reading increases from slightly less than a word a second to more than five words a second. These averages are based on the reading of easy material.

Eye movement photographs show clearly many of the things we want to find out about an individual's reading. In addition to providing records of fixations, recognition span, regressions, rhythm and speed as described above, a reading photograph may be useful in detecting cases of unsuspected eye difficulties. When the movements of the two eyes are not properly co-ordinated, the records

of the eyes will not be parallel. It is evident that photographic records provide valuable information, and that an eye-movement camera is a desirable piece of equipment for a reading clinic.

However, the instrument is not a necessity and its value should not be overestimated. The visual defects that can be discovered by photography of eye movements are detectable by other procedures; eye movements can be observed in a fairly satisfactory way without expensive apparatus (see page 77); and recent research indicates that the ratings on speed of reading, regressions and fixations obtained by use of the *Ophthalm-O-Graph* are not too reliable and do not agree too well with conventional measures of reading comprehension.⁵

Speed of Reading

The accurate reader tends in general to be a fast reader also. Low speed in reading is often due to re-reading, which in turn is caused by failure to understand the material the first time. Fluent reading tends to be fast because it is not held back by stumbling, hesitation, or repetition. Not only do inaccuracies in reading retard speed, but low speed may itself interfere with comprehension. The person who reads very slowly often forgets the beginning of a long sentence or paragraph before he reaches the end of it.

Although fast reading and accurate reading tend to go together, the relationship is by no means perfect. Some fast readers are hasty and superficial, missing half the sense of what they read. Some slow readers cover little ground but master what they do read quite thoroughly. There is disagreement about the closeness of the relation between speed and comprehension. Several years

⁵ Henry A. Imus, John W. M. Rothney, and Robert M. Bear, *An Evaluation of Visual Factors in Reading* (Dartmouth College Publications, Hanover, N. H., 1938).

ago Eurich⁶ brought together the results of several investigations on this topic and reported an average correlation of about .30, which is a positive but quite low degree of relationship. Tinker has objected to these studies on the grounds that in them rate and comprehension were measured on different kinds of reading material. Measuring rate on one form of a test and comprehension on an equivalent form of the same test, he has reported correlations ranging from .42 on very difficult material to .83 on very easy material.⁷ It seems that rate and comprehension are much more closely related when the material is easy than when it is difficult.

The good reader varies his rate according to what he is reading. An efficient adult reader may read at the rate of twenty pages an hour in one book and at a rate of one hundred pages an hour in another book. It is wasteful to read a story in the same thorough fashion in which one studies a textbook, and useless to try to skim a difficult work as one does in racing through a light novel. Evidence is available that fast reading is no advantage in studying such subjects as science and mathematics.⁸ It is only common sense to read more slowly when we want to remember every detail than when we merely want to get a general impression. Speed of reading is also influenced by the size of the page, the length of the lines, and the clearness of the type used.

Speed is less important than comprehension, and should not be emphasized to the point where comprehension suffers. Understanding is the primary goal in reading and must be placed before everything else. The ideal is to read at the fastest rate that allows perfect com-

⁶ A. C. Eurich, *The Relation of Speed of Reading to Comprehension*, *School and Society*, vol. 32, 1930, 404-406.

⁷ M. A. Tinker, *Speed Versus Comprehension in Reading as Affected by Level of Difficulty*, *Journal of Educational Psychology*, vol. 30, 1939, 81-94.

⁸ Eva Bond, *Reading and Ninth Grade Achievement*. Contributions to Education, No. 756 (Bureau of Publications, Teachers College, Columbia University, 1938).

prehension. In most remedial teaching of reading, speed is not emphasized until a thorough basis for adequate comprehension has been established.

Comprehension

There are certain things which are fundamental in all reading for understanding. First of all there must be knowledge of the vocabulary that is used. The words must be understood as well as recognized. The story is told of an old time teacher who proudly demonstrated to a visitor that her second grade pupils could read Latin as fluently as they could read English. They had become quite proficient at translating the printed Latin symbols into spoken sounds, but of course did not have the slightest inkling of the meaning. One is tempted to suspect that the same may have been true of their reading in English. If the reader will try to read an experimental report in the *Journal of General Psychology* or some other scientific periodical, he will be able to appreciate the difficulties which a lack of vocabulary may involve.

A second factor which is basic in reading comprehension is general intelligence. If a child cannot understand something when he hears it, he can scarcely be expected to read it understandingly. According to the National Committee on Reading, "any conception of reading that fails to include reflection, critical evaluation, and the clarification of meaning is inadequate."⁹ Such a statement shows clearly the close relationship that exists between reading and thinking. The level of difficulty at which one can read is limited by his general ability to do ideational thinking.

The past experience of the reader is a third important factor in reading comprehension. The more one

⁹ *The Teaching of Reading: A Second Report*, 36th Yearbook of the National Society for the Study of Education, Part I, p. 35 (Public School Publishing Co., Bloomington, 1937).

knows about a subject, the easier it is to read about that subject. A child finds it easy to understand reading which deals with things he has himself experienced. A broad and rich background of experience forms a necessary basis for good general comprehension.

The person who is equally good at all kinds of reading is the exception rather than the rule. Different kinds of reading require different kinds of mind sets and reading habits. The reading of arithmetic problems differs from the reading of history in the type of attention it demands as well as in vocabulary. The same person may vary considerably in his skill at locating a telephone number in a directory, following directions for building a model airplane, and skimming a story for its plot. Some children learn to make these adaptations without assistance, but most of them need to be shown how to adapt their reading habits to the nature of the material. It is not at all unusual to find college students who are efficient general readers and have an extensive acquaintance with literature, but find it very difficult to do effective study in a textbook.¹⁰

II. SYSTEMS OF TEACHING BEGINNING READING

There are almost as many systems of teaching reading as there are authors of sets of readers. Nearly all of these systems, however, can be classified under one or another of a few basic methods. The main differences in these methods lie in the procedures they use for teaching word recognition. Back in 1908 Huey distinguished four main methods: the alphabet method, the phonic method, the word method, the sentence method.¹¹ With some amplification this classification is still useful.

¹⁰ The improvement of speed and comprehension is treated in Chapter X.

¹¹ Edmund B. Huey, *The Psychology and Pedagogy of Reading* (The Macmillan Company, New York, 1908).

The Alphabet Method

From ancient times up to about sixty years ago the alphabet method was almost universally employed. The child was started on learning the names of the letters of the alphabet. After these were mastered—it sometimes took months—two-letter combinations like *ab*, *ac*, and *ad* were spelled and pronounced. Gradually the child was introduced to three-letter combinations, and eventually to monosyllables and longer words. Many pupils dropped out of school before they got far enough in the process to find out that reading was anything but the memorization of gibberish. As Huey has said, “The value of the practice in learning to spell doubtless had much to do with blinding centuries of teachers to its uselessness for the reading of words and sentences.”¹²

The alphabet-spelling method was a highly mechanical, uninteresting and difficult approach to reading. Those who learned by it tended to become slow and laborious readers. Those who became fluent readers probably did so because they discovered and used other, more effective techniques.

Phonic and Phonetic Methods

The substitution of letter-sounds for letter-names was a natural development from the alphabet-spelling method. The child was first taught the sounds of the letters of the alphabet in a systematic fashion, and then was taught to sound out combinations of letters, starting usually with two-letter combinations. For instance, the word “cat” would be attacked as follows: Kuh-a-tt, cat. When the child came to a new word he was expected to pronounce it letter by letter and fuse the sounds mentally so as to get the sound of the whole word. This

¹² *Ibid.*, p. 266.

method was originally called the *phonic* method; it is better known today as the *blending* method. A major difficulty with the method was the fact that in English many letters have more than one sound, and in many words there are silent letters.

Because of the difficulties produced by the irregularities of English spelling and pronunciation, many "phonetic alphabets" similar to those now used to indicate pronunciation in dictionaries were worked out. An early phonetic alphabet used ninety-two symbols to represent the various sounds of the small letters, and a corresponding number for capitals.¹³ The difficulty of learning such an unwieldy set of symbols may easily be imagined. It is no wonder that in the early years of the present century men like John Dewey were recommending that the teaching of reading should be postponed until the age of eight or nine years.

The artificial phonetic alphabets have practically disappeared from the teaching of reading, although diacritical marks must usually be taught later in connection with the use of the dictionary. The blending method, using the normal alphabet, is still used somewhat, specially among older teachers. It has two definite points in its favor. It helps the child to learn to read in a systematic left-to-right direction, and, when mastered, it provides a technique by means of which most unfamiliar words can be deciphered. It also has several definite disadvantages. First of all, many English words are not pronounced as they are spelled (try sounding out "weigh"). Secondly, some children seem to be unable to blend sounds and recognize the corresponding word, as the method requires. Thirdly, a systematic blending method, like the alphabet-spelling method, tends to build

¹³ For interesting details about early methods of teaching reading consult Huey, *loc. cit.*, and Nila B. Smith, *American Reading Instruction* (Silver, Burdett Co., Chicago, 1934).

up habits of slow, labored reading. Finally, the mechanical nature of the method does not stress the importance of comprehension in reading, and as a result many children taught in this way can pronounce every word but do poorly on comprehension tests.

In modern phonetic teaching the trend has been away from the blending method and in favor of the use of *phonograms*, which are commonly found combinations of two or more letters, such as *ate, ore, ing, est*, etc. The sounds of initial consonants are taught first, and then the children are taught to divide simple words into the initial consonant and a phonogram. The word "came" would be divided into c-ame by this method. By combining a phonogram with different preceding and following letters, a *word family* may be built up. The *and* family, for instance, contains hand, land, band, candy, etc. Training in the recognition of common syllables and in analyzing long words by syllables is also a recognized part of modern phonetic training, but usually is introduced after the second grade.

Most recent systems of teaching reading place some stress on the analysis of words by phonograms and syllables, but not at the beginning. A word or sentence approach is usually used until a considerable vocabulary of sight words has been learned. Dolch¹⁴ has presented evidence that children with mental ages below seven years show little ability at phonetic analysis, even after systematic instruction. He recommends that phonetic teaching should not be introduced until the second grade. There is other evidence available which indicates that systematic phonetic training is not helpful in the low first grade, and may well be delayed until the second grade.

¹⁴ E. W. Dolch and M. Bloomster, *Phonic Readiness, Elementary School Journal*, vol. 38, 1937, 201-205.

The Word Method

The word method, although devised by Comenius almost four hundred years ago, did not begin to be used much in the United States until after 1870. At present it occupies an important place in many reading systems. It is based on the psychologically correct idea that a word is not merely a collection of letters, but has a recognizable character of its own. A child does not see a cow as a head, a body, a tail, and four legs, but as an animal with a distinctive shape. Words may similarly be recognized by their total appearance. Children can learn to recognize a whole word about as quickly as they can learn to recognize a single letter.

In this method the usual presentation is for the teacher to put a word on the board, pronounce it for the class, and then have the class pronounce it. After a few words have been introduced, they are combined in very short sentences. Flash cards, with one word printed on each card, are commonly employed to promote speed and accuracy in recognizing the words. Another method of presentation introduces the word in connection with a picture which it describes. Word-picture games in which the words are to be matched with pictures are then introduced for drill and review. This method is a desirable one when work-books suitable for it are available.

The word method makes it possible for a child to develop a reading vocabulary of sight words in a relatively short time. Meaningful reading material can be introduced much earlier than with the alphabet-spelling or phonetic methods. The word method, however, does not give the pupil any means of attacking new words independently and so must be supplemented with training in word analysis. If this is neglected the child may come to rely too much on the context or setting in which

a new word occurs, and may do entirely too much guessing. The pupil may also have difficulty in distinguishing between words of similar size and shape, such as "ball" and "bell," unless special training to overcome this difficulty is given. The word method is, then, a good method when combined with other procedures, but may lead to serious difficulties if used alone.

The Sentence Method

The sentence method was designed to emphasize the meaningful nature of reading. Since the sentence rather than the word is the unit of meaning, it was argued that reading sentences should be taught from the first.

This method begins with the printing of a short sentence, or a short story of three or four lines, on the blackboard by the teacher. The teacher reads the selection to the class and the class repeats it, individually and collectively. In re-reading, the teacher may point to each word as she pronounces it. Word discrimination may be introduced by varying the words in a sentence, as: Baby runs to Mother. Dick runs to Mother. Dick runs to Baby. Mother runs to Baby. Phonetic analysis is introduced only after a few easy books have been read, and a fairly large sight vocabulary has been learned.

In the early development of the sentence method the authors of readers felt keenly the need of providing practice in word discrimination. Because of this they filled pages with sentences in which the same words were used over and over in different combinations. In many cases the pages made just as good sense reading from the bottom line up as from the top line down. Plot and story were sacrificed to provide for word repetition. Meaningful reading—the platform on which the method was advocated—was largely neglected.

As a result of dissatisfaction with primers employing

largely meaningless material, primers of a "literary" type, making use of folk tales and nursery rhymes, came into popularity around 1910. These were interesting and meaningful, but employed such large vocabularies and introduced new words at such a rapid rate that many teachers devoted most of the class reading period to word study rather than to connected, meaningful reading. If a teacher managed to get a class through one book by the end of the year she was doing well.

To overcome the vocabulary difficulties brought on by the use of literary readers, some reading systems advocated thorough study of each story by the children before they read it. First the teacher read the story to the class, and then each sentence was thoroughly drilled in chart and blackboard lessons. By the time the children were allowed to read the story they usually knew it by heart. Such a procedure is about as effective as any could be for destroying interest.

Not only may memorizing the story spoil interest, but it may also lead to very faulty reading habits. Buswell¹⁵ found many first-grade children taught by this method who could "read" fluently; but eye movement photographs showed that their eyes wandered at random over the page while they recited from memory. The teacher may think that the child is a good reader, when he really is not reading at all. Many parents are similarly deluded when their young pride and joy recites the appropriate nursery rhyme when he sees the picture in the book. There is little or nothing to be said in favor of this "story-memory" method. Once easy readers came into common use in the first grade, the only excuse for the method disappeared.

¹⁵ Guy T. Buswell, *Fundamental Reading Habits*.

The Experience Method

It is the common practice in many schools to start the children in the first grade on a project or activity which involves the investigation of some large topic, such as the circus, transportation, Indian life, etc. The different subjects of a conventional program, such as reading, writing, handwork, drawing, music, and dramatization, all revolve around this central theme and are introduced through leading the children to see the desirability of engaging in them. As it applies to reading, this method calls for the children to make up little stories about what they learn or experience. These stories are printed on charts or on the blackboard by the teacher, and form the materials for the earliest lessons in reading. The development of reading material out of stories suggested by the pupils is also used in schools which are not committed to the activity method as a whole. The informal chart materials are used until the children are judged to have built up a sufficient reading vocabulary to be prepared for book reading.

This method has been severely attacked by Stone, who has criticized it on the following grounds: (1) the method encourages memory reading; (2) too many words are introduced, many of which will not appear in the readers of the first and second grades; (3) there is not enough repetition of the words that are introduced; (4) the content is often too difficult; and (5) the method is not adaptable to individual differences.¹⁶ An experimental comparison of this method with more formal methods has been made by Lee,¹⁷ who tested first grade children in a number of California schools and found that the schools

¹⁶ C. R. Stone, *The Current-Experience Method in Beginning Reading, Elementary School Journal*, vol. 36, 1935, 105-109.

¹⁷ J. M. Lee, *Reading Achievements in First-Grade Activity Programs, Elementary School Journal*, vol. 33, 1933, 447-451.

which gave the most emphasis to project activities made the poorest showing in reading. We cannot be sure that this inferiority would continue in the higher grades, but Lee's evidence is surely not favorable to the experience method.

An answer to Stone's criticisms has been made by Smith, who had stenographic records taken of activity and formal reading lessons. He asserts that the vocabulary in the activity classes was as well chosen and repeated as much as in the formal classes.¹⁸ However, he did not measure the achievement of the pupils, and his evidence is therefore not convincing. Another study of the vocabulary used in an informal first grade program has been made by Richardine and Wilson,¹⁹ who tabulated the words employed in the diary of stories about daily experiences used by a first grade class as reading material. The number of words was far greater and the amount of repetition far less than in any recent set of first grade readers. They defend the method on the ground that "In real life situations, where interests are natural and motivate learning, the need for repetition is largely supplanted by intensity of experience, and by the much more extensive associations and integrations resulting from deeply satisfying experience." Since they present no evidence of the effectiveness of the class diary as a teaching device or of the ineffectiveness of published materials in arousing motivation and creating satisfying experiences, this argument cannot be accepted as conclusive.

The main difficulty with the experience method is the danger of using too extensive a vocabulary and too little repetition. This can be avoided by a teacher who is willing to take a little trouble. By using a standard word

¹⁸ C. A. Smith, *The Experience Method in Beginning Reading*, *Elementary School Journal*, vol. 38, 1937, 96-106.

¹⁹ Sister Richardine and Frank T. Wilson, *A Reading Activity in Grade One*, *Elementary English Review*, vol. 15, 1938, 170-178.

list²⁰ the teacher can modify the vocabulary of the class-constructed stories so as to include mainly words which will be frequently encountered in primary reading, and it is not hard to provide repetition if the need for it is understood. If this is done there seems to be no reason why the method cannot be successfully used. It does have a natural appeal and usually does produce high motivation. It is, of course, not a complete method, but rather a procedure for preparing children to read books.

The Intrinsic Method

Gates has developed a method, called the *intrinsic* method, which depends on the use of specially prepared materials. Before a child starts on the first story in a very easy little book called a pre-primer, he completes several lessons in a work-book or preparatory book. All the words of the story are introduced in the preparatory exercises, through the use of pictures, matching games, and other devices. Drawing, coloring, cutting and pasting are introduced in connection with the reading exercises. "The setting for each new word should be carefully worked out so that the word is surrounded with such abundant and suggestive context clues that the pupil will be quite sure to figure it out promptly and correctly."²¹ When he approaches the story in the pre-primer the child should know all the words in it and should be able to read it with ease. Review is provided through comprehension tests which give additional practice on the vocabulary, as well as check up on understanding of the story. Practice in word discrimination is provided in exercises such as: The boy threw a (ball bell bill). The method is adaptable to highly individu-

²⁰ A description of the commonly used word lists will be found in Chapter VIII.

²¹ Arthur I. Gates, *The Improvement of Reading*, Revised Edition, page 272 (The Macmillan Company, New York, 1935).

alized instruction, as the materials are to some extent self-teaching. The use of work-books to introduce vocabulary, provide added word repetition, and check on comprehension is continued in higher grades.

The essence of the method, according to Gates, is that the child learns to read through reading activities, rather than through relatively unrelated activities. The effectiveness of the method depends mainly on the adequacy of the preparatory materials that are used ; if these are not well prepared, the method collapses. Unless a teacher has available materials which have been specially prepared for use with the intrinsic method, she will get better results with other procedures. The method is based on a sound psychology and has many desirable features. Some teachers who have used it report that they find it necessary to give more phonetic training than is provided for in the printed materials, in classes above the first grade.²²

Present Tendencies in Beginning Reading

It is generally agreed today that the mechanical alphabet-spelling and phonetic methods should have no place in the teaching of reading to beginners. Methods which start with larger meaningful wholes are generally approved. There is a division of opinion about the relative merits of starting with words or starting with sentences. In both the word and sentence methods emphasis is placed on the recognition of words as units, not as collections of letters. Both methods stress the meaningful nature of reading.

It is also generally agreed that a period of preparation is necessary before children are ready to begin to use primers. The period of preparation is used to teach a

²² A good description of an intrinsic approach will be found in Clarence R. Stone, *Better Primary Reading*, pp. 233-272 (Webster Publishing Company, St. Louis, 1936).

small vocabulary of sight words which are frequent and important in later reading. The earliest words are taught by means of chart and blackboard materials and work-books which present the words in connection with pictures. The words are presented in various combinations with much repetition until they can be easily recognized.

As soon as a sufficient number of words has been learned the children are introduced to book reading in extremely easy little books called pre-primers. These contain stories with desirable elements of plot and surprise, although the same words are used over and over again. After the pre-primer the children progress to primers and then to first readers. Many authorities consider it desirable for a child to read from three to six books on one level of difficulty before progressing to the next level.

There is still much discussion about the relative amounts of time that should be spent in silent and oral reading. Opinions range all the way from some who believe that an exclusively oral approach should be used in teaching the beginnings of reading to others who want to banish oral reading entirely. Among the latter is McDade, who has announced a method of teaching reading which uses no oral reading at all.²³ The consensus of opinion, however, is that oral and silent reading should be equally prominent in first grade reading. Oral reading is probably the more natural beginning approach, as the child already has an extensive oral vocabulary. The words used in the early lessons are already known to the child, and the task is to connect their visual appearance with their sound and meaning. Silent reading should be introduced from the very start of book reading, and from

²³ J. E. McDade, A Hypothesis for Non-Oral Reading: Argument, Experiment and Result. *Journal of Educational Research*, vol. 30, 1937, 489-503.

then on should receive as much attention as oral reading. If silent reading is neglected, the children are apt to become "word callers," who may be proficient in naming words but get little or no meaning from what they read.

While phonetic methods are no longer recommended for introducing children to reading, most authorities believe that some training in phonetic analysis of words is necessary. There is nearly universal agreement that phonetic analysis should not be introduced until after children have learned a sight vocabulary of over fifty words. In many systems phonetic lessons are introduced in connection with the first reader; in other systems they are delayed until the second grade.

III. READING INSTRUCTION ABOVE THE FIRST GRADE

At this point a survey of the outstanding characteristics of reading instruction seems to be in order. These will be taken up in a broad and general way, and many of them will be discussed in detail in later chapters. Attention will first be given to the aims that are important at different levels of reading instruction, and then some of the major trends in the teaching of reading will be described.

Stages in Reading Instruction

Reading is a very complex type of skilled activity, as we have already seen. In it are brought together a large number of skills that have to be practiced and learned. While a good start is important, the development and improvement of reading ability requires continued attention over a period of many years. Improvement in reading is not entirely a matter of practice and instruction, because it is limited by the ability of the child to learn and to improve. Some improvement takes place simply as a result of the increasing maturity of the child

as he grows older. Without practice, however, the possibilities of improvement that are provided by increasing maturity cannot be realized. In the normal child reading skills improve steadily as he progresses through school. There are no abrupt transition points, but for convenience a number of stages in the teaching of reading may be distinguished.

The National Committee on Reading in its first report²⁴ described five stages in reading instruction. The first of these is the stage of reading readiness, which will be considered in detail in the next chapter. The second, the initial stage in learning to read, has been discussed above.

The third stage is one of rapid progress in fundamental reading attitudes and habits, and includes the instructional program of the second and third grades. In these grades a thorough basis should be provided in the basic habits and skills. Training in the techniques of word analysis and word recognition needs to be given throughout this period. When the pupil enters the fourth grade he should know the sounds of all of the letters of the alphabet and of most of the common phonograms, and should be able to work out the pronunciation of unfamiliar words without help. Oral reading should retain an important place, but increasing emphasis should be given to silent reading. By the end of the period silent reading should be faster than oral reading, and should be free of pointing or lip movements. Attention must be devoted to building a liking for reading and to encouraging the pupils to read widely in varied sources. Since reading is used extensively as a learning tool in the fourth grade and above, it is important to try to bring all children promoted from the third grade up to the point

²⁴ *Report of the National Committee on Reading*, 24th Yearbook of the National Society for the Study of Education, Part I (Public School Publishing Co., Bloomington, 1925).

where they can read fourth grade material with satisfactory understanding.

During the fourth, fifth, and sixth grades, which constitute the fourth stage in reading instruction, the normal reading program should include wide reading that extends and enriches the child's experience. Although the basic skills in word recognition and comprehension should be acquired in the primary grades, it is necessary to pay continued attention to the improvement of those skills in the middle grades. Silent reading should become much faster than oral reading, and should occupy most of the time spent on reading instruction. Training in the use of books and in the location of information in dictionaries and other reference works should have a definite place in the program. Special attention needs to be devoted to the skills that are involved in the reading of factual material, which becomes an important feature of instruction in these grades. Sixth grade reading ability is sufficient for most of the general reading done by adults, but for satisfactory work in the junior high school it represents a bare minimum. A determined effort should therefore be made in the sixth grade to bring as many pupils as possible up to the seventh grade level in reading ability.

The fifth stage, which may be called one of refinement of reading, includes the secondary school and college period. There is definite need for continued guidance in reading, although this need is not recognized in many schools. The development of a variety of study skills is achieved by many without special help, but others, including many high ranking students, need assistance in learning how to study independently and efficiently. As the student gets to higher levels of instruction, the reading he is expected to do increases both in amount and

in difficulty. Effort devoted to perfecting reading and study skills at this stage pays substantial dividends in the improvement of general scholastic efficiency.

Trends in Reading Instruction

Many years ago instruction in reading was predominantly oral. When research began to show that children taught in this way tended to be slow, laborious readers, silent reading became the vogue. In many schools the pendulum swung so far that oral reading was almost completely neglected above the first grade level. This tendency in turn had its bad effects, among which were inaccurate word recognition, poor spelling, and lack of opportunity to give desirable training in speech and diction.

It is difficult to make any definite statement about the exact proportion of time that should be devoted to oral and silent reading. For one thing, many reading lessons are hard to classify as belonging to one or the other category. For instance, should a blackboard drill on vocabulary, followed by silent reading, be included as part of the silent reading lesson or classified separately as oral reading? Another difficulty is the fact that at the present time authorities differ on this problem, and the research workers have not yet produced a final answer.

In spite of these difficulties, some answer must be made to the inquiring teacher. A consensus of opinion of experts would probably come close to the following recommendations. In the first term of reading instruction, oral reading (including chart and blackboard exercises) should take up more than half of the time devoted to reading. After the children are well started on book reading, the proportion of time devoted to silent reading should be gradually increased and the time spent on oral

reading should be decreased. In the second and third grades less than half of the time should be given to oral reading, decreasing to not more than one-third in the fourth grade, and to not more than one-quarter in the fifth grade and above.

The traditional oral reading lesson was one in which all the pupils had the book open at the same place and were expected to follow along as each one arose in turn, stumbled or mumbled through two or three sentences, and sat down as quickly as possible. Such a procedure has only a limited utility, as a rapid method of testing. Each oral reading lesson should have a specific goal and should be planned to contribute a definite value to the reading program as a whole. A partial list of types of oral reading lessons that seem to have real worth follows.

1. *Audience reading.* Each pupil is given a chance to select and prepare a selection to read to the class, preferably from material that is *not* familiar to the other pupils. After considerable practice at home and, if possible, a preliminary rehearsal with the teacher, the child reads his carefully prepared selection to his classmates. Since the material is new to them and well presented, the interest of the class is usually well sustained and the pupil experiences satisfaction from a job well done. Many good teachers of reading make a period of audience reading a weekly event. Sometimes an imitation microphone is employed, a member of the class serves as announcer, and the pupils broadcast their selections in typical radio fashion. Another variation is to present a short play, with each of several pupils reading a different part.

2. *Choral reading.* Certain definite values can be derived from occasional periods in which the class reads aloud in unison. The better readers carry along the poorer ones, who may gain a better appreciation of pronunciation, phrasing, rhythm, and interpretation. This

kind of oral reading is especially suitable for poetry and other strongly rhythmical material.

3. *Finding and reading answers to questions.* After the silent reading of a selection, some kind of check-up on comprehension has become a nearly universal practice. One procedure which brings in oral reading in a natural and significant way is to ask the children to locate in the selection the answers to specific questions. The answers are then read aloud. This provides purposeful review in silent reading as well as desirable practice in oral reading, and may serve as a stimulus for interesting discussions about the correctness of the answers.

4. *Individual reading to the teacher.* Oral reading gives the teacher an opportunity to observe and note pupils' errors and reading habits that need correction. Having the child read a fairly long, representative selection out loud is an important phase of checking up on the pupil's reading abilities. This can be done as a class or group exercise in which each pupil takes his turn. It is more effective, however, to call one pupil at a time to the teacher's desk and have him read to the teacher while the rest of the class is engaged in some activity that does not require the constant attention of the teacher.

Changes have also taken place in the teaching of silent reading. One of them is the tendency to think in terms of specific kinds of reading and to plan lessons designed to improve a particular reading skill. One lesson is designed to give practice in finding the central idea of a selection, another to improve ability at locating answers to specific questions, a third to develop ability to remember the sequence of events, etc. Each lesson should have a definite aim. Reading for appreciation and pleasure is clearly distinguished from work-type reading or study. Minute dissection of plot and characters is avoided in pleasure-type reading because of its tendency to spoil en-

joyment, while habits of careful and accurate reading are built up with carefully planned exercises in the reading of informational material.

Another trend in silent reading has been toward increasing the amount and broadening the scope of the reading done in the schools. Above the primary grades the use of basic readers has tended to be supplanted by wide reading in a variety of sources. Magazines, pamphlets, and newspapers are brought into the classroom and used as instructional materials. The "classics," while not ignored, have had to make room for a large amount of reading that is intimately related to contemporary life.

Even more significant than the specific changes in teaching procedures has been the increasing awareness of the importance of individual differences as a factor in reading. Some teachers still seem to believe that if their teaching is good it should bring all or nearly all of their pupils up to a fairly uniform level of achievement. The schools are realizing more and more the falsity of this belief. Children when they enter school differ widely in their abilities and in their potentialities for future development. With efficient instruction these differences should increase rather than decrease as they progress through school. Even when the dull child is brought by highly efficient instruction up to the highest level that his capacity allows, he will still be far behind his bright classmates. Uniformity of achievement in a class is more apt to indicate neglect of the abler pupils than generally effective teaching.

With this recognition of the significance of individual differences have come all sorts of attempts to adjust the school program to the varying abilities of the pupils. These have included plans for classifying pupils into instructional groups on the basis of reading ability, and plans which attempt to provide complete individualiza-

tion of the reading program. Realization of the importance of meeting the needs of each pupil has brought remedial instruction into the foreground. This should not be conceived too narrowly. The aim of the teacher should be not merely to help those who are poor in reading, but rather to help every pupil, the good as well as the poor, to develop the maximum power in reading of which he is capable.

SUGGESTED ADDITIONAL READING

- Clarence R. Stone, *Better Primary Reading*, especially Chs. V and VI (Webster Publishing Company, St. Louis, 1936)
- Paul McKee, *Reading and Literature in the Elementary School*, Ch. VI (Houghton Mifflin Company, Boston, 1934)
- The Teaching of Reading: A Second Report. 36th Yearbook of the National Society for the Study of Education, Part I. (Public School Publishing Company, Bloomington, Illinois, 1937)
- Better Reading Instruction. *Research Bulletin of the National Education Association*, vol. 13, No. 5, 1935, pp. 273-325. (Research Division of the National Education Association, Washington, D. C.)
- Paul Klapper, *Teaching Children to Read*, Fourth Edition, Chs. III, V, and VII. (D. Appleton-Century Company, New York, 1926)

CHAPTER III

READINESS FOR READING

Before a baby can walk he must develop strength in his back and legs and must be able to balance himself. When he has developed these necessary abilities he will usually begin to walk ; before then, no amount of teaching and helping by his parents will produce results. Reading is a much more complex activity than walking, and requires a much more advanced and complex development before it can be learned. Many children fail in reading because they are given reading instruction before they have attained the necessary level of development. Once off to a bad start, they find it difficult to make up lost ground. By taking the simple precaution of not giving children formal reading instruction until they are ready for it, much of the present retardation in reading can be prevented.

I. WHAT READING READINESS IS

In most schools all children who are six years old are placed in the first grade and given instruction in reading. The assumption is that reaching the age of six means being ready for reading. All studies of individual differences show that such uniformity is far from true. Some children at the age of six have developed no farther than the average four year old, while others are as mature as an average child of eight.

Readiness for reading is not a simple trait, but depends on a large number of characteristics. Among these are intelligence, visual and auditory perception, language development, background of experience, and social behavior.

Intelligence

Dullness and illiteracy have long been associated together in the popular mind. It is true that the dull child has difficulty in learning to read. He learns more slowly than and cannot progress as far as the normal child. Because of his slower rate of mental development, he becomes ready for reading instruction at a later age than the average.

Intelligence is usually expressed in terms of mental age (M.A.) and intelligence quotient (I.Q.).¹ The M.A. indicates *what* a child can learn; the I.Q. indicates *how fast* he will probably learn. From the standpoint of readiness for reading the M.A. is more important than the I.Q., because it indicates the level of difficulty of the work that a child is able to master.

It is hard to make an exact statement about the lowest mental age that allows satisfactory progress in reading. For one thing, difficulty in learning depends to a considerable extent on the teaching methods and materials that are used. Another complication is that other factors besides intelligence, such as language background, etc., are involved in reading readiness. Morphett and Washburne² have shown that when fairly difficult materials are used and a high standard of accomplishment is set, children who enter the first grade with mental ages below six have little chance of passing, and success is most frequent for children whose mental ages at entrance are

¹ Saying that a child has a M.A. of eight years means that he does as well on an intelligence test as an average child of eight. The M.A. is not a measure of brightness or dullness, but a statement of the child's present level of mental ability. To express the rate of mental growth the I.Q. is used. It is obtained by dividing the M.A. by the child's chronological age and multiplying by one hundred. The I.Q. usually does not change much as a child gets older because the M.A. increases in proportion to the chronological age. In reading disability cases greater changes in I.Q. should be expected than in normal children.

² M. V. Morphett and C. Washburne, *When Should Children Begin to Read?* *Elementary School Journal*, vol. 29, 1931, 496-503.

above six and one-half. On the other hand, Winch³ has reported good results in teaching reading to five year olds, and Gates⁴ has presented results which indicate that average five year olds can make satisfactory progress when given highly individualized instruction. A number of writers⁵ have proposed the mental age of six and one-half as the minimum desirable for beginning instruction, but the opinion of the Committee on Reading of the National Society for the Study of Education⁶ is that the majority of pupils, especially those who have attended good kindergartens, are reasonably well prepared for instruction when they enter the first grade and that reading has a legitimate place in the first grade program.

Two cases may be cited to show the bad effects of starting children on reading before they are mentally mature enough. Bronson entered school at the age of five, and as the school had no kindergarten, was placed in the first grade. He came from a good home, was of average intelligence, and had no physical or sensory defects. Throughout the year he was at a complete loss, and at the end of the year he made zero scores on reading tests. He repeated the year and made fairly satisfactory progress. All the effort expended on him during the first year was wasted. When he entered school, Bronson was too

³ W. H. Winch, *Teaching Beginners to Read in England*, Journal of Educational Research Monographs, No. 8 (Public School Publishing Company, Bloomington, 1925).

⁴ A. I. Gates, The Necessary Mental Age for Beginning Reading, *Elementary School Journal*, vol. 37, 1937, 497-508.

⁵ C. A. Smith and M. Jensen, Educational, Psychological, and Physiological Factors in Reading Readiness, *Elementary School Journal*, vol. 36, 1935, 583-594, 682-691.

R. Streitz, When Should Reading Experiences Begin? *Progressive Education*, vol. 13, 1936, 325-332.

W. Rosebrook, Preventing Reading Deficiency, *Elementary School Journal*, vol. 36, 1935, 276-287.

J. H. Hobson, Reducing First-Grade Failures, *Elementary School Journal*, vol. 37, 1936, 30-40.

⁶ 36th Yearbook, Part I, p. 87.

young and immature to tackle reading. His mental age was growing at a normal rate, however, and in another year became high enough for successful reading.

More frequent in the schools are children like Lawrence, who was of average age but below average in intelligence when he entered the first grade. Lawrence entered school at the age of six, with an I.Q. of 80 and a M.A. of less than five years. He was of course confronted with work beyond his mental capacity, and in addition the type of instruction he received was not adapted to children whose rate of mental growth is slow. His initial handicap was reinforced by inappropriate instruction, and he became a real case of reading disability. At the age of ten, he was still struggling with second grade work.

Since there are as many children with I.Q.s below 100 as there are children with I.Q.s above 100, nearly half of the six-year-old children who enter first grade have mental ages below six. Approximately twenty per cent have I.Q.s below 90 and M.A.s below five and one-half. Postponing reading instruction for a term would give these children a much better chance to succeed than they now have; postponing it for a full year would increase their chances still more.

It has been suggested by some writers that the proper question to ask is what is the age at which children will gain the most profit from learning to read, rather than what is the lowest age at which they can successfully be taught. On this basis Witty and Kopel⁷ have suggested that the best time to introduce reading to the average child may be as late as the age of eight or nine. It is highly questionable, however, that such a long delay is necessary or that it is possible to find adequate substitutes

⁷ Paul A. Witty and David Kopel, Preventing Reading Disability: the Reading Readiness Factor, *Educational Administration and Supervision*, vol. 22, 1936, 401-418.

for the rich vicarious experience that children gain from reading in the primary grades.

Taking all the evidence into consideration, one may conclude that it is safe to start a child on reading at the age of six if he has an I.Q. of 100 or above and has no special handicaps that may interfere with progress. All other children should be given a delayed and gradual introduction to reading.

Perception and Muscular Co-ordination

Progress in reading depends to a considerable extent on the ability to see and hear words clearly, and to notice the differences among them. While these abilities are definitely susceptible to training, some children need much more help than others before they develop the sharpness of discrimination needed for reading.

Any marked departure from normal vision may give a child hazy or incorrect images when he looks at words. Few first grade children are near-sighted, but the majority of them are far-sighted and tend to outgrow the condition as they get older. Astigmatism and poor co-ordination of the eyes are also common in six-year-olds. Betts⁸ is inclined to recommend the postponement of reading beyond the age of six to avoid straining immature eyes.

Even if the eyes are normal, the child may have immature visual perception. Seeing a thing does not always mean noticing its details. Many young children pay attention only to the main characteristics of visual stimuli—the size, shape and color—and ignore the details. When asked to match letters or words they make many errors, not because of faulty vision, but because they do not notice differences which are obvious to older children.

⁸ Emmett A. Betts, *The Prevention and Correction of Reading Difficulties*, pp. 153-156 (Row, Peterson and Company, Evanston, 1936).

Prominent among the perceptual tendencies of immature children is the tendency to make *reversal errors*. To such children, *b*, *d*, *p*, and *q*, are the same; the differences are ignored. The letters *m* and *w* may be confused; this is an example of a vertical reversal. Pairs of words such as *on* and *no*, *saw* and *was*, *tap* and *pat*, etc., also tend to be confused, since the children have not yet learned to look at a word always from left to right. Studies by Teegarden⁹ and Davidson¹⁰ have shown that reversal errors are very common among young children and tend to decrease as children get older, and Teegarden's results indicate that children with marked reversal tendencies make less than normal progress in the first grade.

Because the ability to distinguish between words and letters is so important for progress in reading, items designed to measure this ability are found in all reading readiness tests.

Inability to distinguish between words which sound somewhat alike may prove a severe handicap in learning to read. In some children it is due to faulty hearing. In others hearing acuity may be normal, but the child has not learned to perceive the differences in the sounds of the words. Deficiency in auditory sensation or perception often results in the persistence of infantile pronunciation. If a six-year-old still pronounces his *rs* like *ws*, or mixes up his *th* and *v* sounds (*muvver* for *mother*) or slurs and mispronounces words of more than one syllable, the chances are good that he does not notice the difference between his pronunciation and the correct pronunciation. If a child does not hear the difference between two words, he will have difficulty distinguishing between

⁹ L. Teegarden, Clinical Identification of Non-Readers, *Child Development*, vol. 3, 1932, 346-358.

¹⁰ H. P. Davidson, A Study of the Confusing Letters B, D, P and Q, *Journal of Genetic Psychology*, vol. 47, 1935, 458-468.

their printed symbols. Such children also have difficulty learning the sounds of the letters.

It is not known at present how much the ability to make fine motor co-ordinations has to do with progress in learning to read. Drawing, coloring, cutting, and pasting are usually given a prominent place in first grade activities, but it has not been established that skill in them is closely related to reading. Poor control of the movements of the eyes, as shown in lack of ability to follow along a line, may possibly be a handicap to some children.

Experience

The young child whose parents are educated and cultured grows up in a home which provides many opportunities for favorable development. He is surrounded by adults who speak good English with a rich vocabulary, and naturally tends to develop the same kind of speech. Through trips and excursions he is provided with broadening experiences. Books and magazines in the home attract him with their bright pictures, and the stories which are read or told to him tend to develop an early interest in books and reading. Such a home is valuable in providing the child with a background of knowledge that will aid him in reading.¹¹

Many children who are normal in intelligence come to school from homes that are quite lacking in intellectual stimulation. Children who grow up in city slums or on isolated farms sometimes know astonishingly little about the world in general, although they may know a great deal about certain phases of it. They are often com-

¹¹ Ethel M. Falke (Chairman), *A Cooperative Study of Reading Readiness* (Madison Public Schools, Madison, Wisconsin, 1937; mimeographed).

G. H. Hilliard and E. Troxell, Informational Background as a Factor in Reading Readiness, *Elementary School Journal*, vol. 38, 1937, 255-263.

pletely ignorant of many things that are commonplace to the average first grade child. One child known to the writer lived only half a mile from one of the world's most famous zoos but had never been taken there; he did not know a cow from a horse, and had never seen a chicken outside of a butcher shop. It is no wonder that he found his primer (which dealt with farm life) hard to understand.

Language Background

An adequate understanding of spoken language is important for progress in reading. The average six-year-old has a vocabulary of more than two thousand words and is able to express himself in complete sentences. This is sufficient for the first grade program, which calls for the learning of only a few hundred of the commonest words, and uses very simple sentence structure. Some children who enter the first grade, however, fall well below these requirements.

Mastery of language is dependent on many other factors. The most important of these are intelligence, hearing, and home environment. The dull child is slow at learning to talk because language is a highly intellectual acquisition. There is in general a close relationship between a child's intelligence and his mastery of speech. When children of normal intelligence are retarded in speech it is usually because of a special handicap, such as defective hearing or a very restricted home background.

Children who come from homes of low cultural level do not have normal opportunities to develop an adequate language background. If a foreign language is spoken in the home the handicap is more intense, as the child tends to develop a small English vocabulary, incorrect pronunciation, and faulty sentence construction. For-

eign born parents who do not try to learn English are usually poorly educated and their homes are often deficient in many other respects besides language.

Robert is an example of the hampering effect of a foreign language background. Although born and brought up in New York City, he heard little English until he entered school. His parents had immigrated from Latin America and lived in a compact little community of other Spanish-speaking people. Robert picked up what little English he knew on the streets, but even there Spanish was the major language. His reading reflected this poor background. He mastered the mechanics of reading fairly well (although he ignored endings and spoke with a marked accent), but showed extremely poor comprehension. A great many commonplace words meant nothing to him. Children like Robert form a large part of the school population in the larger cities and in many smaller communities. They often find it hard to progress in reading even when they have normal intelligence. If they are also dull—and many of them are—they are doubly handicapped in their school work.

Social Behavior

Teachers in the upper grades sometimes wish they were in the first grade, where the children are little angels and have not yet been spoiled. This is just another variation of the idea that the grass is always greener in the other fellow's yard. First grade children have already developed decided personalities of their own. There are some who always pay attention, learn easily, and enter readily into the class activities. There are others who try the teacher's patience. Some are flighty and distractible and cannot keep at one activity for as much as ten minutes at a time. Others want the center

of the stage and are constantly trying to attract the teacher's attention in one way or another. Still others are shy, timid, and afraid to open their mouths. Any personality trait which interferes with normal participation in class work will naturally prevent a child from making the best use of his abilities in learning to read.

II. HOW TO MEASURE READING READINESS

Although a first grade teacher can form a subjective judgment during the first weeks of school about the progress that a child is likely to make, objective methods of determining reading readiness are to be preferred. From the test results one can measure more quickly and more accurately the status of the child in comparison to the rest of the pupils, make a more precise estimate of his rate of progress, and determine the presence of handicaps that need correction. A well rounded program for measuring reading readiness involves the use of both intelligence and reading readiness tests.

Intelligence Tests

From the standpoint of the person who administers the tests, intelligence tests fall naturally into two groups: individual tests, which can be given to only one child at a time, and group tests, which can be given to several children at the same time.

Individual tests are more trustworthy than group tests, especially with young children. The examiner can watch what the child is doing all the time, and has a better chance to keep the child doing his best throughout the test. He also has a good opportunity to observe such traits as poor attention, distractibility, carelessness, etc. The most widely used individual intelligence test in the United States is the *Stanford Revision of the Binet-*

Simon Intelligence Scale, usually called the *Stanford-Binet*.¹² The 1937 revision of this test is somewhat more reliable than the older form, but the 1917 edition is still serviceable and is preferred by some clinical psychologists. Other tests that are about as good as the *Stanford-Binet* are the *Kuhlmann-Binet*, the *Herring-Binet*, and the *Kuhlmann Tests of Mental Development*. These tests all place considerable emphasis on language development. For supplementary testing, performance scales like the *Arthur Point Performance Scale*, the *Cornell-Coxe Performance Ability Scale*, and the *Pintner-Paterson Performance Scale* may be used. These consist of things to do such as fitting formboards and picture puzzles together, and do not involve the use of language. They should be used as a substitute for a verbal test only when the child has a special handicap in language.

The main drawbacks to the use of individual tests are that they require the services of a person with special training, and consume a large amount of time because each child must be tested separately. Because of these difficulties group tests are often used instead.

Group intelligence tests for first grade children are all somewhat alike. Directions are given orally, and the children indicate their answers by making marks on pictures. No reading ability is called for. Items commonly included are intended to measure ability to follow directions, ability to note similarities and differences, and range of information. Among the best group tests of intelligence for first grade entrants are the *Detroit First Grade Intelligence Test*, the *Kuhlmann-Anderson Intelligence Test*, the *California Test of Mental Maturity*, *Pre-Primary Battery*, and the *Pintner-Cunningham Primary Test*.


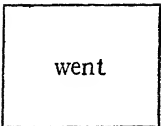
¹² A list of all of the tests mentioned in this book, with information about publishers, etc., will be found in Appendix A.







Reading Readiness Tests

In the past few years several tests have been developed which are designed to measure readiness for reading. These are similar to the intelligence tests in many respects, but there are also important differences. The reading readiness tests are intended to measure only those aspects of mental and physical performance which are closely related to success in learning to read.

Two of the shortest and simplest of these tests are the *Stone-Grover Classification Test for Beginners in Reading* and the *Lee-Clark Reading Readiness Test*. The *Stone-Grover* test has two parts, both of which are intended to measure the child's ability to see likenesses and differences in word forms. In the first part the child is required to indicate whether two word forms are exactly alike or somewhat different. In the second part several words are presented on a line; all the words are alike except one, and the child is to mark the one that is different. The *Lee-Clark* test has four parts. The first two parts call for matching similar letters of the alphabet, in small letters and capitals. The third part calls for crossing out one letter which is unlike three others, and the fourth part presents two words together, one of which is the same as the other except for an extra letter which is to be crossed out.

Both of these tests are relatively short and easy to administer, and may be given as group tests. According to their authors they both show satisfactory reliabilities and correlate fairly well (above .60) with reading achievement in the first grade. They both measure about the same function, ability to detect similarities and differences in words and letters. This is important for reading, but not the only important ability for reading. Either test will serve satisfactorily when used together with an in-

	clean	stock
clock	chalk	clock
	want	went
		ment
	sent	wont

		boy	boy
		flag	flies
		chick	chair
		threw	threw

a red apple

a red ball
 the red apple
 a yellow apple
 a red apple

FIG. 4. Samples of exercises in the perception of similarities and differences. Top, reproduced from the *Stone-Grover Classification Test for Beginners in Reading*, by permission of Webster Publishing Co.; middle, from the *Metro-politan Readiness Test*, 1933, by permission of the World Book Co.; bottom, from the *Stevens Reading Readiness Test*, by permission of the American Education Press, Inc. All are reduced in size.

telligence test that includes measures of language ability and general information. However, both tests are too restricted in function to be completely satisfactory if no other test is given.

The *Metropolitan Readiness Test* is a group test consisting of six parts. These are intended to measure ability to perceive similarities and differences, to copy visual forms (giving an opportunity for reversal errors), understanding of words, understanding of sentences, counting ability, and range of information. It is a fairly long test, requiring over an hour, and should be given in several sittings. Norms are given for the total test and for each part. The test is carefully worked out and shows a satisfactory relationship (above .60 according to several investigators) with first grade reading. If the testing program is restricted entirely to group tests, this is a good choice. For the purpose of classifying first grade children it is as good as or better than the best group intelligence tests.

The *Monroe Reading Aptitude Tests* include seventeen separate tests. Most of them may be administered to groups, but some must be given individually. The tests are grouped under five headings. The visual tests include measures of memory of the position of visual forms, control of eye movements, and drawing from memory. The auditory tests measure ability to detect the correct pronunciation of a word, to distinguish between words that sound somewhat alike, and to reproduce a story from memory after hearing it. The language tests include measures of extent and richness of vocabulary, and sentence length. The articulation tests cover correctness of articulation and speed in repeating words. The laterality tests measure hand, eye, and foot preference. According to the manual of directions, these tests show a quite high correlation (.75) with progress in first grade reading. In addition to the total score, a profile is provided which shows the child's strong and weak abilities. Suggestions are given in the manual of directions for strengthening weaknesses.

The *Van Wagenen Reading Readiness Tests* come in two equivalent forms. There are six tests, all of which must be given individually. They cover range of information, understanding of logical relationships, vocabulary, memory span for sentences, discrimination of like and unlike words, and ability to learn word forms. In content they resemble a good individual intelligence test such as the *Stanford-Binet* more than they do most of the other readiness tests. They are very good for measuring the language background of a first grade child, as it relates to reading. Where there is time for individual testing but no trained psychologist is available, these tests can be used to good advantage.

The *Betts Ready to Read Tests* consist of tests of visual readiness, auditory readiness, visual sensation and perception, and dominance. The tests are designed for individual administration. They are mounted on stereoscope cards which are to be used in an elaborate stereoscope called a *Telebinocular*. The visual readiness tests call for the matching and comparing of letters, phonograms, and words. The auditory readiness tests include a test of auditory memory span and one of ability to recognize words when they are sounded letter by letter. The other parts of the Betts tests are vision tests rather than reading tests, and will be discussed in the section on vision in Chapter VI.

The *Stevens Reading Readiness Test* is a long test, with three main parts. The first part contains sixteen pages of exercises in locating similarities and differences among letters, words, and phrases, and may be given as a group test. The second part, which must be given individually, measures the child's ability to re-tell a story. The third part is a learning exercise in which the child's ability to recognize eight words is tested after he has had three training periods; the training periods may be given

to groups, but the testing is done individually. The manual recommends that the test should be given in small doses spread over a two week period. In addition to the tests, a detailed rating scale covering mental and physical factors, language factors, home environment, and social and emotional traits is supplied. Suggestions for developing readiness are included in the manual. The very high correlation of .80 with achievement in reading in the low first grade is claimed for this test.

A new trend in reading readiness is indicated by the *Reading Readiness Test* devised by Clark as a measure for predicting the student's readiness for a particular set of first-grade reading materials, the *Alice and Jerry Books*. This test has two parts, the first of which is an information test in which the child shows his knowledge of the words and concepts employed through marking pictures according to directions, and the second of which is an exercise, similar to those found in most readiness tests, involving the detection of similarities and differences.

Planning a Readiness Testing Program

Many school systems are now making a routine practice of testing all children who enter the first grade for the purpose of classifying them into instructional groups. The selection of tests for such a program is usually influenced by practical considerations. The presence or absence of trained examiners and the amount of money available for test equipment are important in deciding what tests to use. Inferior tests are often used in order to save a few pennies per child. When the high cost of failure is considered, it should be obvious that the best available measures are the most economical in the long run.

If the services of a trained examiner are available, the most desirable combination of tests is a good individual

intelligence test and at least one of the more comprehensive readiness tests. If someone is available to give individual tests but has not the training necessary to give an individual intelligence test, a group intelligence test may be used together with one or more readiness tests, preferably including one that requires individual administration. If the program is restricted to group tests, at least one intelligence test and one readiness test should be employed.

The value of using more than one test is illustrated in a study by Fendrick and McGlade.¹³ The *Metropolitan Readiness* and *Detroit First Grade* tests were given to 66 first grade pupils at the beginning of the year and the results were compared with the success or failure of the pupils in learning to read. Of the 47 for whom success was predicted on both tests, 43 passed and only 4 failed. Eight of the ten whose scores indicated success according to one test and failure according to the other also passed. However, only two of the nine who scored poorly on both tests managed to pass. The use of the two tests together gave more accurate prediction than either of the tests by itself.

It is wise to wait a week or two after the opening of school before administering tests to first grade children, as it takes a little time before they get accustomed to school ways. In some schools it may be preferable to give the tests in the last two or three weeks of kindergarten. In giving a test the manual of directions should be followed exactly. Not more than ten or twelve first grade children should be tested at one time, as larger numbers make it difficult to make certain that all know what to do and are following directions.

¹³ P. Fendrick and C. A. McGlade, A Validation of Two Prognostic Tests of Reading Aptitude, *Elementary School Journal*, vol. 39, 1938, 187-194.

III. PRACTICAL APPLICATIONS OF READING READINESS

Classification of First Grade Entrants

Assuming that an intelligence test and a reading readiness test have been given to the children, the next step is to classify them into instructional groups. In most schools a division into three groups is practical. If there are enough children, these groups may be made separate classes. In a small school the groups may be made subgroups in one class.

The first group is made up of the children who will probably make rapid progress in reading. For this group children should be selected who have mental ages of at least six and a half, and who stand in the upper third of the class on the readiness test.

The second group consists of children who will probably make average progress. Children who have mental ages between six and six and one-half and stand in the middle third of the class on the readiness test form the nucleus of this group.

The third group consists of the children who do not come up to the standards set for the first two groups. These children are probable failures if given a conventional first grade program of reading. They need to be introduced to reading slowly and carefully. Such classes have been called pre-reading classes, readiness classes, or transition classes. The essentials of a program for such a group are discussed in the next section.

There will always be some children who do not fit exactly into any of the three groups. They may have high intelligence scores and low readiness scores, or vice versa. Handicaps known to the teacher but not disclosed by the tests should also be taken into consideration. In these cases the teacher must use her best judgment in

deciding what group seems to be most appropriate and must watch the child's progress closely to see if he would be better adjusted in one of the other groups. A change of group placement should be made whenever the work of a child seems to make it advisable.

Developing Readiness for Reading

Reading readiness can be developed to some extent by appropriate teaching. General intelligence cannot be markedly changed, but all of the other factors in reading readiness are susceptible to improvement. In general, the procedures helpful in promoting reading readiness are essentially those of modern kindergarten practice.

In order to produce effective results, it is necessary to set up definite objectives and to plan specific procedures for attaining them. A list of major objectives, with suggestions about useful procedures, now follows.

1. Discovery and correction as far as is possible of visual, auditory, and other physical defects that may need attention. Obviously this should be stressed for its own sake as well as for its value in removing impediments to learning.
2. Provision of rich and varied experiences as a background for comprehension. Experience may be enriched directly through visits to such places as zoos, farms, stores, fire stations, etc., and indirectly by means of stories, songs, games, and discussion of pictures and lantern slides.
3. Training in the perception of similarities and differences in visual forms. Visual perception may be sharpened by drawing, coloring and other types of handwork, and by games in which matching forms and shapes is the main activity. Exercises may be constructed and duplicated in which the pupils are to select the one form that differs from several others that are identical. In successive exercises the differences should be made progressively less conspicuous.
4. Development of a wide speaking vocabulary. New words are added to a child's vocabulary most naturally in

connection with new experiences, so the suggestions made above for providing varied experiences are equally useful for vocabulary expansion. In addition, the teacher may deliberately introduce new words by using them in her own speech, and by games such as who can name the most animals, things people ride in, etc. Words suggested by one pupil that are unfamiliar to other pupils may then be explained.

5. Provision of training in accurate pronunciation and correct English. Speech training is incidentally provided in songs, stories, dramatization, and informal conversation. The teacher should be careful to provide a desirable model for imitation by the pupils, and should encourage them to speak in complete sentences.
6. Development of a desire to read. For this a library table supplied with attractively illustrated picture and story books is of great value. The teacher should read stories from these books and encourage the children to look at the pictures. Motivation is such an important factor in learning that considerable effort should be spent on getting children to want to read.

Teachers who desire a more specific program than the general suggestions just made may find workbooks designed to aid in building reading readiness quite helpful.¹⁴ More extended discussions of pre-reading activities than space allows here may be found in the references at the end of the chapter.

Some authorities believe that reading should be entirely omitted from the program of children who are not ready for formal reading instruction. This is taking a too pessimistic attitude about the learning ability of such children. Davidson¹⁵ showed several years ago that even dull five-year-old children can make some progress in ac-

¹⁴ Workbooks intended for use in developing readiness for reading include *Before We Read* (Scott, Foresman and Co.), *Mother Goose and Busy Brownies* (American Education Press), and *Here We Go* (Row, Peterson and Co.).

¹⁵ Helen P. Davidson, An Experimental Study of Bright, Average, and Dull Children at the Four-Year Mental Level, *Genetic Psychology Monographs*, vol. 9, Nos. 3, 4, 1931.

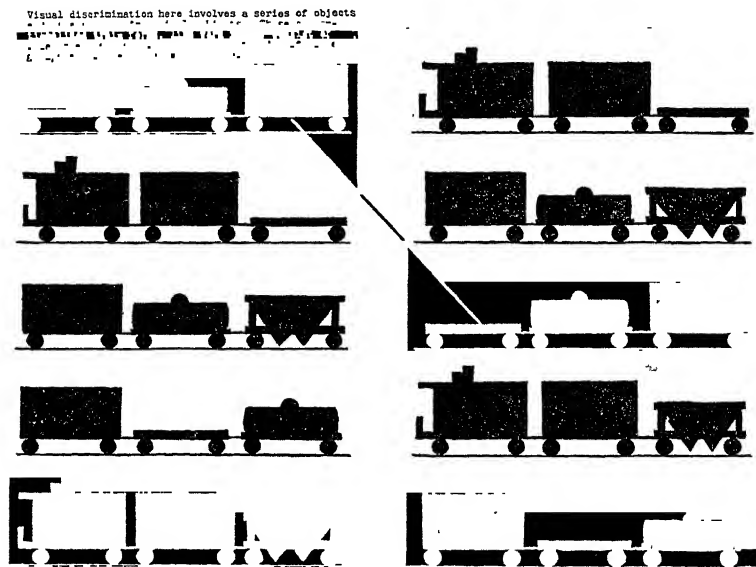


FIG. 5. A sample page from *Before We Read*, intended to give practice in matching word-like forms. Reproduced by permission of Scott, Foresman and Co. Greatly reduced in size.

quiring a reading vocabulary, when methods are used that are adapted to their abilities. In the transition class major emphasis should be placed on developing readiness for reading, but some actual reading should also be introduced.

Reading may be introduced to these children by labelling the objects in the classroom, such as the clothes closet, desks, chairs, windows, blackboard, etc. New signs should be introduced from time to time. A pre-primer that presents a small and simple vocabulary with a great deal of repetition should be selected. The words of the pre-primer should be introduced gradually in blackboard and chart reading. Seatwork in the form of matching words with pictures, and printed directions for coloring and cutting out pictures, using the vocabulary of the pre-primer, should be utilized. This is most easily available

in the work-books that accompany most modern pre-primers. If work-books are not available, similar materials may be made up in mimeographed form. Reading in books should be postponed until the children show evidence of being ready for it. In some classes this may mean a delay of three or four months; in more retarded groups, a year or more may profitably be spent in pre-book activities.

A slow rate of introducing new work and a large amount of repetition are essential with slow-learning children. If the work is introduced gradually and every new achievement is noted and praised by the teacher, nearly all of the children in a transition class will make some progress. They will, of course, be far behind the normal and superior groups.

Evidence of the value of a gradual introduction to reading for children who show signs of lack of readiness is available in a report by Woods,¹⁶ who states that the introduction of transition classes in Los Angeles has reduced the rate of failure in the first grade from 20 per cent to 11 per cent. Her conclusion is that an even more gradual program than the one tried out there is necessary to prevent the remaining failures. Conclusions favorable to a delayed and gradual introduction of reading have also been reached by Gates and Russell¹⁷ as a result of a tryout of such a plan with dull, underprivileged children.

Promotion Policies in the Primary Grades

It was pointed out in Chapter I that the highest rates of failure in the elementary school occur in the primary

¹⁶ E. L. Woods and Staff, A Study of the Entering BI Children in the Los Angeles Public Schools, *Journal of Educational Research*, vol. 31, 1937, 9-19.

¹⁷ A. I. Gates and D. H. Russell, The Effects of Delaying Reading a Half Year In the Case of Underprivileged Pupils With I.Q.s. 75-95, *Journal of Educational Research*, vol. 32, 1939, 321-328.

grades, and that most of this retardation is due to failure in reading. With the adoption of the newer viewpoint about reading readiness it is inevitable that changes should be made in promotion policies. If the children are not forced to read before they are ready for it and are allowed to progress at their own rate, there is no reason for repeating grades.

A number of schools have been experimenting with plans for eliminating failure in the primary years. In one such plan, reported by Boney,¹⁸ the first-grade teacher stayed with the same class for three years; all the children were promoted regardless of what they had learned. The method used stressed individual and small-group instruction for the most part, and each child was allowed to proceed at his own rate. Careful measures of achievement were made at fairly frequent intervals and after each check-up those children who were found not to have progressed much since the preceding tests were given special help. The significant result was that nearly all of the children were able to meet fourth grade standards after three years in the experimental class. Furthermore, several children who made such slow progress in the first year that they would ordinarily have repeated the grade made rapid strides in the second and third years and were up to the average by the end of the experiment.

Another interesting experiment has been described by DeLong.¹⁹ The work of the first two years was divided into six levels of instruction. Intelligence and reading readiness tests were used for preliminary classification. On each level there were three groups, going at different rates of speed. The groups at each level were assigned

¹⁸ C. DeWitt Boney, The Disposition of A Group of Slow First-Grade Readers, *Elementary School Journal*, vol. 37, 1936, 203-208.

¹⁹ V. R. DeLong, Primary Promotion by Reading Levels, *Elementary School Journal*, vol. 38, 1938, 663-671.

different reading materials, so that pupils could be transferred to a higher level or to another group on the same level without having to use the same reading material again. Such transfers could be made at several times during the year without interrupting a pupil's work. Pupils took varying lengths of time to complete the six levels but there were no repetitions in the usual sense of the term. When they entered the third grade practically all pupils were capable of doing third grade reading.

These are two examples of many plans designed to provide differentiated teaching capable of meeting the needs of all the pupils.²⁰ A scheme which is successful in one school system may not meet the needs of another system. But some plan can be worked out for every system which will allow successful adjustment to individual differences. The high rates of non-promotion of the past are no longer justified. Neither can so-called "one hundred per cent promotion plans" be defended which send many children into the intermediate grades completely unprepared for the work. It is possible to eliminate failure and provide for real achievement at the same time. When better practices in primary teaching and administration come into general use, the number of reading disability cases in the upper grades will markedly diminish.

²⁰ For other primary grade plans, see the following:

F. T. Wilson and A. Burke, Reading Readiness in a Progressive School, *Teachers College Record*, vol. 38, 1937, 565-580.

L. B. Wheat, The Flexible Progress Group System, *Elementary School Journal*, vol. 38, 1937, 175-183.

I. B. Peterson, The Reading Readiness Program of the Ironwood Public Schools, *Elementary School Journal*, vol. 37, 1937, 438-446.

SUGGESTED ADDITIONAL READING

- M. Lucille Harrison, *Reading Readiness* (Houghton Mifflin Co., Boston, 1936)
- Paul McKee, *Reading and Literature in the Elementary School*, Ch. V (Houghton Mifflin Co., Boston, 1934)
- The Classroom Teacher*, Vol. II (The Classroom Teacher, Inc., Chicago, 1927)
- Grace E. Storm and Nila B. Smith, *Reading Activities in the Primary Grades*, Ch. VI (Ginn and Co., Boston, 1931)

CHAPTER IV

HOW TO DIAGNOSE SILENT READING

A well-conceived program for improving reading must be aimed at definite goals. Good intentions are no guarantee of success; unless they are intelligently directed, they may result in the strengthening of bad habits that have already been acquired. A physician is expected to make a careful and thorough examination before deciding what sort of treatment to employ in curing a sick patient. The same kind of attitude is needed in regard to educational maladies; the remedy which cures one difficulty may be ineffective in curing another, or may even aggravate it. A well planned program of diagnosis is a necessary preliminary to good remedial work.

In analyzing reading ability, there are three questions to be asked. The first is concerned with *what* the pupil can read. To answer this question one needs to find out what kinds of reading matter can be read in a reasonably satisfactory fashion. The second question deals with *how* the pupil reads. This calls for an investigation of the particular procedures employed by the pupil: his attack on words, fluency, attentiveness, etc. The final question asks *why* the difficulties have arisen. Before this can be answered, a careful investigation must be made into the pupil's intelligence, physical status, and the other factors related to reading difficulties that have been discussed in Chapter I.

It is not always necessary, however, to carry the diagnosis through all three steps. For the purpose of assigning pupils to classes for reading instruction only the first of the three questions must be answered. In adapting instruction to the different needs of the pupils within a

class the second and third steps are desirable, but a detailed investigation of the causes underlying minor difficulties can often be dispensed with. Only when individual attention is being devoted to pupils who have serious disabilities in reading is a thorough analysis of causative factors really essential.

I. WHAT SHOULD BE MEASURED IN SILENT READING

The most important thing to measure in silent reading is the *level of difficulty* at which a child can read. Impressions formed by the teacher about the adequacy with which a pupil can read the books used in class should not be ignored; but a more accurate estimate can be obtained by using standardized tests. The tests designed to measure this aspect of reading consist of a series of graded selections, varying in difficulty from easy to hard, and usually covering a difficulty range of several grades. One or more questions is asked about each paragraph. There is either no time limit or enough time is allowed so that nearly all pupils have done as much as they can before time is called.

Because *vocabulary* is so important in reading comprehension, most silent reading tests include a separate section for measuring it. In primary grade tests the child is usually asked to mark the one word out of several that corresponds to a picture. In vocabulary tests above the primary level each test word is usually presented in a short sentence, with several possible synonyms from which the correct one is to be selected.

Speed of silent reading should be measured on material which is of the same level of difficulty throughout. There are two plans commonly used in measuring speed. One is to use a test containing a large number of short paragraphs of equivalent difficulty, with a question to

be answered on each paragraph. Such tests employ a time limit, and the rate is calculated from the amount read in the time allowed. The other plan presents a fairly long selection of several hundred words and the time required to finish the selection is recorded. This second method is also appropriate for informal tests of rate of reading.

Accuracy in silent reading is measured in terms of the proportion of correct answers on a comprehension test to the total number of questions answered. Although few standardized tests provide standards for accuracy, the person scoring tests should make a note of papers in which unusually high or low accuracy is shown, as this characteristic often has diagnostic significance.

Very few people are equally good at comprehending all kinds of reading material, and tests designed to measure specific kinds of comprehension are of considerable value above the primary grades. In tests for the upper grades and secondary school one finds sections for measuring ability to get the central thought of a selection, to note specific details, to follow directions, to find supporting arguments for a conclusion, to arrange a sequence of events in the order in which they occurred, etc. Some tests include sections for measuring abilities that are more properly classified as study skills, such as the ability to locate information in a table of contents or index, or to interpret maps and charts. Tests of this nature are useful in locating kinds of reading for which pupils need more training.

II. INFORMAL MEASUREMENT OF SILENT READING

Measuring Reading Comprehension

It is possible to measure level of comprehension in silent reading with no more material than a graded set

of readers. The books should be unfamiliar to the pupils and should not be of greater than average difficulty. One should start first with a book at the grade level at which one expects the pupils to be able to read. Choose a short selection from near the beginning of the book and have the pupils read it silently. Have a list of five to ten questions prepared, some dealing with the main idea and others with fairly important details of the selection. When this procedure is used with a group, the questions may be mimeographed or written on the board. If the pupils are unable to answer more than half of the questions correctly, the book is probably too hard for them (provided that the questions are suitable); if they get nearly all of the questions right, the book may be too easy. Easier and harder books may then be tried in the same way until one is found in which most but not all of the questions can be answered. This procedure will give a rough, approximate indication of level of comprehension.

In the regular course of classroom reading instruction most silent reading lessons should be followed by a check on comprehension. In general, short-answer or objective questions are more efficient for this purpose than questions that call for answers in sentence or paragraph form because they take up much less time. Completion and multiple-choice items allow less opportunity for guesswork than yes-no or true-false items and are therefore somewhat more satisfactory. Suggestions about different kinds of informal comprehension tests will be found on pages 296-302. Workbook exercises and standard test items may be used by the teacher as models for framing questions. The questions at the end of stories in readers, if well constructed, may also be used to good advantage.

Measuring Rate of Reading

Informal tests of reading rate are easy to give and should be administered from time to time as a routine procedure in reading instruction. The selection used should be easy for the group, and should be of approximately uniform difficulty throughout. The proper length varies with the grade level of the pupils; in general, one should use a selection long enough to take the average child in the class five to seven minutes, if one wants a fairly accurate measure.¹

Perhaps the simplest way to measure rate is to start the pupils off together and measure the time necessary for each child to finish the selection. The pupils should be instructed to read at their normal rate, and should be informed that they will be questioned about the selection after they finish. They should be told to look up as soon as they finish and copy on their papers the number that is written on the board or displayed on a card. The teacher should expose a new number at regular intervals; every ten seconds or fifteen seconds will give sufficient accuracy. Knowing the number of words in the selection, the teacher can prepare in advance a little table which gives in words per minute the rate corresponding to each number. If the selection is a long one, some time can be saved by finding the average number of words in a sampling of ten lines from different parts of the selection and multiplying by the total number of lines, to get the approximate number of words.

Another technique that can be used is to say, "Mark," at the end of each minute and have the pupils mark the last word they read before the signal. The number of words read in each minute can then be counted and

¹ A. E. Traxler, *The Relationship Between the Length and the Reliability of a Test of Rate of Reading*, *Journal of Educational Research*, vol. 32, 1938, 1-2.

averaged. Another variation is to give only one signal to mark, and divide the number of words read by the number of minutes allowed. This procedure is especially suitable for use with selections found in some readers and workbooks in which the cumulative total of words is given at the end of each line. After the rate test is over, the slower pupils should be allowed to finish the selection so as to have a fair chance in the comprehension test.

When a pupil is being tested individually, it is a simple matter to get the total time for reading the selection, using a stop-watch or a watch with a second hand, and to divide the number of words by the time to get the rate in words per second. Norms for rate of reading are given in Table II, on page 24.²

General Observations

The teacher should be alert to notice the presence of habits which interfere with efficiency in reading. One of the most common interfering habits is the tendency to make lip movements during silent reading. When children begin to read they pronounce each word as they read it. Early silent reading is usually quiet oral reading. With further practice this becomes reduced to inner speech; the person "hears" the words as he reads, but does not say anything. There is a gradual reduction from complete pronunciation through successive stages until completely silent reading is attained. Many children, even in the upper grades and high school, mumble or move their lips when they are supposed to be reading silently. These movements prevent them from reading silently at a faster rate than they can read orally. Lip movements definitely retard speed when they occur above

² Since speed of reading varies greatly according to the material read, any norms for rate must be considered rough approximations. The norms in Table II are for relatively easy material.

the second grade level. They can be easily detected simply by watching the child in silent reading. Other habits which interfere with rate of reading and can easily be observed are keeping the place with a finger or pencil, and turning the head instead of moving the eyes as one reads.

The reading difficulties of some children are aggravated by their inability to concentrate on the reading matter. They are restless and fidgety in their seats, and often interrupt their reading to look around the room or out of the window, or to whisper or get into mischief. In many cases such behavior is not a cause of their difficulties but is a natural result of giving them reading matter which is uninteresting or too difficult, and disappears when more appropriate materials are used. In other cases close checking on their accomplishment by frequent comprehension questions is needed. Restlessness and inattention are significant and should not be ignored.

Observing Eye-Movements

It is not necessary for the classroom teacher to observe the eye-movements of most of his pupils, as the information to be gained is not ordinarily of sufficient importance to justify the large amount of time required to observe each child separately. The teacher of reading should, however, know how to observe eye-movements, and should for his own information try the procedure with a few pupils so as to get a clearer understanding of the way the eyes work in reading. Observing eye-movements should be a routine part of the examination of reading disability cases.

There are two procedures in common use for observing eye-movements. One of them is the *mirror* method. The child is seated at a table on which he rests the book in reading position. The examiner sits slightly behind

and to one side of him, also facing the table. A rectangular mirror, of the sort that can be purchased cheaply at variety stores, is placed on the table fairly close to the book and held by the examiner at such an angle that by looking at it he can observe the child's eyes.

The other method is called the *Miles Peep-Hole Method*.³ An appropriate reading selection is mounted on a sheet of pasteboard. A small opening about one-quarter of an inch square is made near the middle of the page between two lines. The examiner holds the sheet against his face so that he can look through the opening, and the child faces him and reads the selection. If the examiner is taller than the child, he should be seated and the child should stand, to make it unnecessary for the child to look up while reading.

The mirror method is the more flexible of these two methods, as any reading material can be used without special preparation. The peep-hole method, on the other hand, gives a somewhat clearer vision of the eye-movements. These methods are not as objective and accurate as photography, but are good enough to provide most of the information that is sought.

It is advisable to practice on a few normal readers before attempting to observe the eye-movements of a reading disability case. One should not attempt to watch more than one phase of eye-movements at a time. The first three lines or so should be used to get settled. Then count the number of fixations in each of the next ten lines. The recognition span may be roughly estimated by dividing the average number of words per line by the average number of fixations per line. Next count the regressions in the following ten lines. Do not count the top or bottom lines of a page, or lines which begin

³ W. R. Miles and D. Segel, Clinical Observation of Eye Movements in the Rating of Reading Ability, *Journal of Educational Psychology*, vol. 20, 1929, 520-529.

or end a paragraph. If there are so many fixations and regressions that they cannot be counted the tester should not be disappointed, as that fact in itself is highly significant. Norms for eye-movements will be found in Table II, page 24.

A third set of about ten lines of reading should be used to watch for any other significant facts. Some children have difficulty in making a return sweep at the end of a line, and so drop down to the end of the next line and follow it back to the beginning before starting to read it. This is obviously a wasteful procedure and interferes greatly with speed. Many children have difficulty in finding the beginning of a line and make extra fixations there. Other peculiarities may be found occasionally, such as a tendency to move the head rather than the eyes.

III. CHARACTERISTICS OF STANDARDIZED TESTS

The construction of a good standardized test in reading is a long and laborious job that should be undertaken only by specialists in test construction. The general characteristics of standardized tests and methods of constructing them have been admirably described in some of the recent books on testing. Here it is important to note only those characteristics which must be understood for intelligent use of such a test.

The material in a test is selected after careful analysis of the kind of reading a child in the grades for which the test is intended may be called upon to do. Since the test is designed for use in a wide variety of school systems, it must not parallel too closely the content, style or vocabulary of any one set of books. It must also include a wide enough range of difficulty so that the poorest reader in the lowest grade for which the test is intended can get something right, and so that the best reader in the

highest grade for which the test is intended cannot get a perfect score. Nearly always two or more forms are provided which are equivalent in type of question and in difficulty. This makes it possible to re-test a child without using exactly the same material.

Every standardized test is accompanied by a manual of directions which tells in detail exactly how the test should be given and scored. It is essential to follow these directions closely. If this is not done, the norms will not be applicable, since they are based on performances under standard conditions.

There are certain points which are involved in the administration of all group tests. Tests should not be given in the first few days of a new term, as the children often need some time to become accustomed to a new class and teacher, and cannot do their best until they have settled down. Each child should be provided with two pencils, to avoid loss of time if a point breaks. The directions should be explained clearly in accordance with the printed instructions. Since the test is one of reading rather than of ability to understand directions, it should not be started until all the children know what they are expected to do. If during the test a child asks a question which shows that he has not understood the directions, the teacher may show him what he is supposed to do but must not help him to find the correct answer. During the test the teacher should move around the room and encourage any child whose effort is lagging. If the teacher believes that for any reason a child has not been able to show on the test what he can really do, he should be given another test under more favorable circumstances.

After a test has been constructed it is given to several thousand pupils in schools selected so as to be representative of all the schools in the country. A table of *norms*

is simply a statement of results obtained in this preliminary testing, and may be used as a basis for interpreting results on the test when given to other pupils. The three kinds of norms commonly used in reading tests are reading grade, reading age, and percentiles.

In computing the table of *reading grades* that is found in any reading test manual, the test author first classifies his results according to the grade position of the children. He then finds the median score for each grade.⁴ If the median score of all children in the first month of the fifth grade was 46, then any child obtaining a score of 46 is said to have a reading grade of five years and one month, or 5.1. Reading grade scores are usually given in terms of years and tenths, since there are ten months in the school year.

The *reading age* is similar to the reading grade except that the norms are based on the age of the child rather than on his grade position. Thus a reading age of 9-7 (nine years and seven months) means that the child's score is equal to the median score of children who are nine years and seven months old.

Percentiles are ways of stating how a child compares with other children of his own age or grade. Saying that a child has a percentile score of 89 means that he has done better than 89 per cent of the children with whom he is being compared, and is surpassed by only 11 per cent. A percentile score of 42 means that the child has done better than 42 per cent of the comparison group, and has been surpassed by 58 per cent. Important percentile scores are the 25th, the 50th, (which is the same as the median) and the 75th. Tables of percentile scores often use steps of five or ten percentile points, from which intermediate values may be computed.

⁴ The median is the score above which are half of the scores and below which are half of the scores.

The *reliability* of a test means the degree to which the test gives consistent results. It is usually found by giving two forms of the same test to a large group of pupils. If each pupil makes practically the same score on one form that he does on the other form, the test is highly consistent and reliable. If many pupils make scores on one form much higher or lower than their scores on the other form, the test has a low reliability. The reliability of a test is usually stated in one of two ways: the coefficient of self-correlation, or the probable error. If a test is being used merely to compare the average scores of different classes, it is not necessary to use a test of high reliability. For the purpose of measuring the ability of an individual pupil, however, only a test of high reliability should be used. Such a test should have a self-correlation of at least .90 for a single grade, or a probable error of not more than four months.

The *validity* of a test is the degree of accuracy with which it measures what it is intended to measure. If a test has low reliability it cannot be very valid, but a high reliability does not insure high validity. Let us suppose we have a test consisting of thirty paragraphs of equal difficulty, with one question on each. The test is given with a fairly short time limit, and has a high reliability. Such a test is intended to measure speed of reading, and may have high validity as a measure of speed. If someone mistakenly attempted to use this test as a measure of level of comprehension the results would be highly inaccurate, and thus of low validity. Evidence about the validity of a test is nearly always given in the manual of directions. This evidence need not be accepted at its face value, and should be checked by looking up impartial opinions about the test and by a careful inspection of the test to see if the items seem to be designed to

measure the phases of reading ability that one wants to measure.

IV. STANDARDIZED SILENT READING TESTS

Standardized silent reading tests can be classified according to the grade levels for which they are intended and according to the reading functions they are designed to measure. Under the second method of classification, the major divisions include survey tests, analytical tests, and tests of a single function such as vocabulary or rate. Since the primary purpose of this section is to acquaint the reader with the characteristics of reading tests rather than serve as a test catalogue, no attempt has been made to include descriptions of all available tests.

Survey Tests

The major purpose of a survey test in reading is to give a fairly accurate measure of the level of difficulty at which a pupil can read. These tests generally have long time limits, so that the pupil is stopped primarily by the increasing difficulty of the items rather than by the calling of time. Most survey tests have two parts, one designed to measure reading vocabulary and the other a test of paragraph comprehension. Measures of ability to read sentences and of rate of reading are included in some of them.

At the primary level, the *Gates Primary Reading Tests*⁵ are good examples of tests for survey purposes. These include three types of tests, printed in separate booklets, and designed to measure word recognition, sentence reading, and paragraph reading. The items are arranged in order of increasing difficulty and the time limits are fairly long.

⁵ A list of reading tests, with data about forms, publishers, etc., will be found in Appendix A.

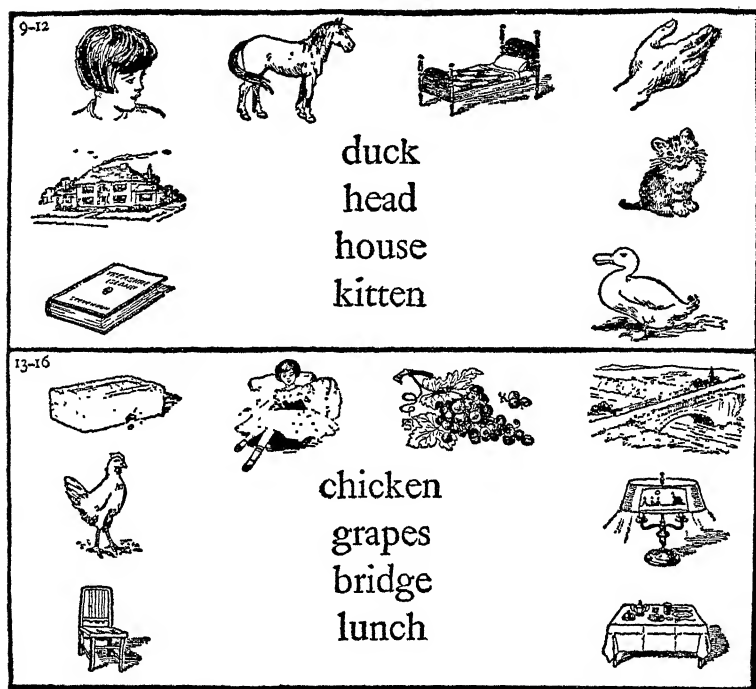


FIG. 6. Sample of a word recognition test, reproduced from the *Metropolitan Primary Reading Test*, Form A, 1933, by permission of the World Book Co. Reduced in size. The child draws a line from the word to the corresponding picture.

A representative example of survey tests in reading above the primary level is the *New Stanford Reading Test*, which has been very widely used. This test has two parts, one to measure reading vocabulary and the other a test of paragraph comprehension. Each word in the vocabulary test is followed by several others from which an appropriate synonym is to be selected. The paragraph test consists of a series of short paragraphs, in each of which one or more words are to be inserted to complete the meaning. The range of difficulty covered

is wide enough so that the test may be used in grades three through eight. Age and grade norms are provided for each part and for an average of the two parts. Five equivalent forms are available.

Most other survey tests for the intermediate and upper grades follow a similar pattern, although there are minor

WORD MEANING

Directions.—In each of the exercises below, you should read the sample sentence or expression, then read the five words or phrases following it, and select the one whose meaning is most nearly like the meaning of the word which is underlined in the sentence. Draw a line under the word thus selected and place its number in the parentheses at the right. Notice the example:

Example.—They will invite him to go.

(1) tell (2) command (3) ask (4) forbid (5) select (3)

1. They adapt themselves well.

(1) please (2) adjust (3) carry (4) conduct (5) consider ()

25. An intricate passage.

(1) deep (2) dark (3) interesting (4) complicated (5) narrow ()

50. They wrangle constantly.

(1) laugh (2) fist fight (3) quarrel (4) play (5) cry ()

FIG. 7. Sample of a reading vocabulary test at the junior high school level, reproduced from the *Traxler Silent Reading Test for Grades 7 to 10*, Form 1, by permission of the Public School Publishing Co. Reduced in size.

differences in the kind of questions used to measure paragraph comprehension. They include the *Metropolitan Intermediate and Advanced Reading Tests*, the *Durrell-Sullivan Reading Achievement Test*, the *Nelson Silent Reading Test*, the *Public School Achievement Test in Reading*, the *Unit Scales of Attainment Reading Test*, and the *Modern School Achievement Test in Reading*. The latter two tests have no time limits. Tests of the same general nature for higher levels include the *Nelson-*



19. Every morning the cows leave the big barn. They go to the fields to eat grass. Look for the barn in the picture. Draw a line under it.

5. Ned has a store.
Jane went to the store.
She bought potatoes.
Tom went to the store.
He bought some meat.

1. Who owns the store?

Jane Ned Tom John

2. At the store one child buys

carrots onions meat brooms

FIG. 8. Samples of paragraph reading tests at the primary level. Top, from the *Gates Primary Reading Test*, Type 3, Form 2, by permission of the Bureau of Publications, Teachers College, Columbia; bottom, from the *Metropolitan Primary Reading Test*, Form A, 1933, by permission of the World Book Co.

DIRECTIONS: Write **JUST ONE WORD** on each dotted line.

SAMPLE:

Dick and Tom were playing ball in the field. Dick was throwing the ball and..... was trying to catch it.

¹ Fanny has a little red hen. Every day the hen goes to her nest and lays an egg for Fanny to eat. Then she makes a funny noise to tell Fanny to come and get the.....

⁷⁸ Although he carried stakes, measured distances, and kept his surveyor's notes with care, the beauty of the bough, not the strength of fiber of its wood; the color of the distant mountain, not its elevation; the evanescent spray and ever-changing wonder of the torrents, not their latent horsepower, enthralled him and showed him that engineering.....
.....the calling of his heart.

FIG. 9. Sample of a paragraph reading test, reproduced from the *New Stanford Reading Test*, Form W, 1929, by permission of the World Book Co.

Denny Reading Test for Colleges and Senior High Schools and the *Minnesota Reading Examination for College Students*.

When the purpose for testing is to get the general average of a group, or to locate the severely retarded pupils in a group for more thorough testing, a short survey test that takes only a few minutes is sometimes desired. For this purpose one of the *Monroe Standardized Silent Read-*

IX



Sugar beets must be raised where cheap labor can be secured because the plants require a great deal of cultivation, most of which must be done by hand. First the plants are thinned and then blocked to get the correct number in the rows. The roots from which the sugar is extracted are not like the red beets which are eaten as vegetables, but are more like the common turnips. These roots are washed, sliced, and soaked in water. The water is later drawn off and boiled into beet syrup. Then the syrup is changed to a brown sugar called raw sugar. The last step is to send the raw sugar through the refinery, where it is cleaned and whited. Then the white sugar is ready to be boxed and sold for use in our homes.

41. Sugar beets must be raised where labor is not expensive because they require —
 1 much care 2 much washing 3 many plants in a row 4 soaking in water 5 much boiling.
42. What kind of labor is most used in the raising of sugar beets?
 1 machine 2 manual 3 difficult 4 easy 5 unusual
43. The raw sugar is — 1 made into syrup 2 refined and whited
 3 boxed and sold 4 left as it is 5 changed to brown sugar.
44. The best title for this story is — 1 Blocking and Thinning Beets
 2 Colorado Sugar Beets 3 How Beet Sugar Is Obtained
45. Raising sugar beets requires — 1 inexpensive labor 2 syrup changed to sugar
 3 sugar to be cleaned 4 many common turnips 5 raw sugar

FIG. 10. Sample of a paragraph comprehension test, reproduced from the *Durrell-Sullivan Reading Achievement Test*, Intermediate, Form A, 1937, by permission of the World Book Co. Reduced in size. The answer to each question is indicated by filling in with a pencil between the appropriate pair of dotted lines. A perforated stencil is used in scoring, with correct answers showing through holes in the stencil and needing only to be counted. This test is also adaptable for use with a separate answer sheet that can be scored on the International Test Scoring Machine. Many recent tests are arranged in this way.

ing Tests or of the *Detroit Reading Tests* may be used. In using such tests, it should be kept in mind that the brevity of the test means lower accuracy than can be secured with a longer test.

Tests which, while intended primarily for survey purposes, include measures of rate and accuracy as well as vocabulary and paragraph comprehension, are the *Gates Reading Survey*, usable in grades 3 to 10, the *Traxler*

Silent Reading Test for Grades 7 to 10, and the *Pressey Diagnostic Reading Tests*, for grades 3 to 9. The latter two are noteworthy because of the closeness with which they approximate ordinary silent reading conditions.

Analytical Tests

In contrast to the survey tests, which are designed mainly to indicate general level of comprehension, are a number of tests intended to give a more detailed analysis of silent reading.

At the primary level, the *Metropolitan Primary Reading Test*, the *Chicago Reading Test B* (grades 2-4), and the primary levels of the *Progressive* and *Ingraham-Clark* tests are examples of analytical tests. The *Metropolitan Primary* has six sub-tests, measuring phases of word recognition and sentence and paragraph reading. The *Chicago* test measures comprehension of words, sentences, and paragraphs, and rate of reading. The *Progressive Primary* test contains three sub-tests on vocabulary (word form, word recognition, and meaning of opposites) and three sub-tests on comprehension (following directions, directly stated facts, and interpretations). The *Ingraham-Clark Primary* has eight sub-tests covering recognition of form, identification of meanings, simple comprehension, and interpretation.

Among the analytical tests available for the intermediate and upper grades, the *Sangren-Woody Reading Test*, the *Iowa Silent Reading Tests* and the *Gates Silent Reading Tests* have been widely employed. The *Sangren-Woody* is a test for grades 4 to 8 designed to measure seven different phases of silent reading: word meaning, rate, fact material, total meaning, central thought, following directions, and organization. Norms are provided for each part as well as for the total score. The *Iowa* tests, which include an *Elementary* test for grades 4-8

TEST 3. PARAGRAPH ORGANIZATION

PART A. SELECTION OF CENTRAL IDEA

DIRECTIONS. This test is given to see how well you are able to recognize the central idea of a paragraph by selecting the best descriptive phrase that tells what the paragraph is about. After each paragraph you will find short groups of words that are numbered. *In the parentheses at the right put the number of the group of words which most nearly suggests the central thought of the paragraph.*

-
1. Before the match was invented, starting a fire was not an easy matter. The Indians often started fires by rubbing two sticks together. A much more common method among the early settlers was to strike steel and flint together, the sparks lighting a bit of "tinder" Oftentimes live coals were carried from one house to another. Since the invention of the friction match in 1827, starting a fire has become a simple process.
- 1 invention of matches 2 kinds of fire 3 the match industry
 4 methods of starting fires 5 how Indians started fires. () 1

FIG 11. Sample of a test designed to measure ability to select the central idea of a paragraph, reproduced from the *Iowa Silent Reading Tests*, Advanced Test: Form B (Revised) 1931, by permission of the World Book Co. Reduced in size.

and an Advanced test for high school and college, resemble the *Sangren-Woody* in general organization. They include measures of comprehension for scientific and social science material, general and technical vocabulary, selection of a central idea, sentence meaning, location of information in index and table of contents, and rate of reading.

The *Gates Silent Reading Tests* are intended to measure rate and accuracy in four types of reading: to appreciate general significance, to predict the outcome of events, to understand precise directions, and to note details. They do not measure level of comprehension, as all the paragraphs in each test are on the same level of difficulty. This fact has been overlooked by some people who have used the tests. The time limits are short, making speed an important factor in the scores. They are best used in combination with a level of comprehension test.

The *Progressive* series has an Elementary test for grades 4-6, an Intermediate test for grades 7-9, and an Advanced test for high school and college. Each has four vocabulary sub-tests and three comprehension sub-tests. In the Intermediate and Advanced tests the vocabulary section contains sub-tests on the vocabulary of mathematics, science, social science, and literature; in all three, the comprehension sub-tests deal with following directions, interpretation, and organization. The *Ingraham-Clark* Intermediate test, for grades 4-8, has four sub-tests on word form and meaning, and four sub-tests on comprehension. The *Chicago Reading Tests* C and D (grades 4-6 and 7-9) include measures of word, sentence and paragraph comprehension, rate, and interpretation of graphs and maps.

Analytical tests have the potential advantage over general survey tests of providing the teacher with a profile of the silent reading skills of the pupil in which his relatively strong and weak points may be discovered. In judging one of these tests several points should be kept in mind. If the number of sub-tests is very large, the separate parts may be too short to be accurate measures, even though the total score may be highly reliable. The time limits for the sub-tests may be so brief as to place an unwarranted premium on rate of reading. The test may require a very long time to score. Finally, in the attempt to provide easy scoring, types of items may be used that do not resemble closely the kinds of reading that pupils ordinarily do. These criticisms do not apply to all analytical tests, but should be kept in mind when making a selection.

Vocabulary Tests

There are several tests available which are intended for the sole purpose of measuring reading vocabulary.

Vocabulary tests for the primary grades are mainly tests of word recognition; above the primary level, comprehension of meaning is the major function tested. Among the vocabulary tests for the primary grades are the *Detroit Word Recognition Test*, the vocabulary part of the *Pressey Diagnostic Reading Tests, Grades 1A-3A*, the *Manwiller Word Recognition Test*, and Type 1 of the *Gates Primary Reading Tests*. The *Dolch-Gray Word-Recognition* and *Word-attack Tests* attempt to determine the kinds of clues used by children in recognizing and analyzing words, and their mastery of phonetics.

For the intermediate grades, the vocabulary sections of any of the good level of comprehension tests may be used. Among separate vocabulary tests the *Holley Sentence Vocabulary Scale* may be noted. At the high school and college level the *Inglis Vocabulary Tests* have been most widely employed.

Tests of Rate of Reading

The best known test of rate of reading is the *Chapman-Cook Speed of Reading Test*, which consists of thirty short paragraphs of equal length and difficulty. Each paragraph contains a superfluous word that is to be crossed out. The test is designed for grades 4 to 8, and has been used at higher levels also. It takes only two and a half minutes. The *Michigan Speed of Reading Tests*, the *Minnesota Speed of Reading Tests for College Students*, and the rate test of the *Gates Reading Survey* are similar to the *Chapman-Cook* in make-up, and are all somewhat longer and slightly more reliable. Tests of this sort are easy to give and score and are of satisfactory reliability, but are somewhat artificial in the sense that the rapid reading of a sequence of disconnected paragraphs calls for a type of adjustment not usually needed in silent reading.

SPEED TEST

Directions: Read these paragraphs. Draw a line under the word which best answers the question. Draw a line under one word only. Do the exercises as rapidly as you can without making errors.

Sample: The sun is warm in summer. Boys and girls like to swim and play games on the grass. When do we get very hot days?

winter summer fall

1. Mary was walking in the snow. She pulled her coat closer but the wind blew the icy snow against her face. What kind of day was it?

pleasant warm tiresome cold

2. They were pretty, red woolen mittens. They were sure to keep out the snow. How do you think they would feel in the winter time?

cold heavy warm wet

8. At night when all is still, a cat can hear tiny creatures moving. She can also see quite well on a dark night. What can see quite well on a dark night?

boy girl cat man

9. The blue roadster was in the ditch. The wrecking car got it out again with just one pull. What do you think the wrecking car had to be?

beautiful strong old light

FIG. 12. Sample of a standardized test of rate of silent reading, reproduced from the *Gates Reading Survey for Grades 3 to 10*, by permission of the Bureau of Publications, Teachers College, Columbia University.

Somewhat different in approach is the speed test of the *Pressey Diagnostic Reading Tests*. This is a 3300 word story in which easy and quickly-marked questions are embedded. The score is based upon the amount read in 10 minutes. A similar procedure for measuring speed is used with the *Stone Narrative Silent Reading Tests*, and *Whipple's High School and College Reading Test*. It should be noted that separate tests of rate are included in the *Iowa*, *Sangren-Woody*, *Monroe*, *Chicago*, and *Traxler* tests that have already been described.

The Selection of Silent Reading Tests

As there are many satisfactory tests available, the selection of tests naturally depends to some extent upon the amount of time available for testing and scoring, the money available for purchasing tests, and other practical considerations. If the school can provide for the use of only one silent reading test, the test selected should be of high reliability and should include as a minimum good measures of vocabulary and level of paragraph comprehension. The use of several relatively short and inexpensive tests measuring different functions is sometimes preferable to a single test that is highly analytical. When it is intended to use a single test to select poor readers for more intensive study, a short test emphasizing comprehension may be used.

V. HOW TO INTERPRET SILENT READING

All the educational testing in the world would be of no practical value if it did not lead to a better understanding of pupils and their instructional needs. Too often in the past tests have been given, scored, tabulated, and then filed away and forgotten.

In the hands of the school administrator silent reading

tests are useful instruments for measuring the effectiveness of instruction, and as a basis for the classification of pupils according to their abilities. A detailed discussion of administrative uses of reading tests will be found in Chapter XII. The classroom teacher may use reading tests to determine the average and range of reading ability in the class, to divide the class into smaller groups for instructional purposes, to determine the specific phases of silent reading in which the class as a whole and individual pupils need more instruction, as an aid in the selection of reading materials of appropriate difficulty, and as a measure of progress. These uses are described in Chapter XIII. When used as part of the diagnostic procedure in studying individual cases of reading disability, silent reading tests furnish valuable clues about the nature of the child's difficulties, help determine the level at which remedial teaching should start, and serve as a means of checking up periodically to determine whether the remedial work is properly directed.

One of the important steps in planning remedial teaching is to determine what materials the pupil is capable of reading. This may be done by using a set of graded readers, as described earlier in the chapter, or by finding the grade score on one or more standardized silent reading tests. Children should not be expected to read materials above the level of their reading grade. In remedial work it is often desirable to start with materials that are one or two grades below the indicated level, so as to insure a feeling of success from the start. It is much better to start below the child's level and work up than to start above it and have to work down.

From a comparison of a pupil's scores on different types of silent reading, valuable clues about the nature of his difficulties can be obtained. Almost any combination of good and poor scores can be found occasionally, but there

are a few patterns of reading performance that are found rather frequently. Some of these will now be described.

Suppose that in your reading you came across the following sentence: "The ***** led ***** of ***** , which ***** in the ***** .” It is very doubtful that you could make much sense out of it. If, however, the sentence read as follows: "The road led ***** fields of rippling wheat, which ***** in the bright sunlight,” you would get the general idea, even if the words you filled in were not the exact ones intended. There are many children who depend almost entirely on this kind of guessing process when they come across a word that is unfamiliar to them. They are called *context readers*, because they depend on the context or general setting of a word when they cannot recognize it.

Using the context as a clue to the meaning of words is in general a desirable practice. Most good readers make use of it frequently and to good effect. If the reader has no other method of attack on unknown words, however, he will be helpless when the number of unknown words in a selection is large.

There are several characteristics which serve to distinguish the context readers as a group from other types of reading cases. Their performance is usually better on tests of paragraph reading than on tests of vocabulary or word recognition, as there are usually more clues in a long selection than in a short one. They generally score higher on a test which involves finding the central idea of a selection than on one which calls for painstaking attention to details. Their scores on rate tests are usually higher than on tests of level of comprehension. Their reading tends to be rapid and somewhat inaccurate. They are apt to do markedly better on tests of silent reading than on oral reading tests. They are usually of aver-

age or above average intelligence, since considerable mental ability is necessary to be able to make correct guesses.

In general context readers need training in word recognition techniques and in careful, accurate reading. Suggestions for remedial treatment of such cases will be found in Chapters IX and X.

For some children the reading of paragraphs is a very difficult task. They can do fairly well on short units such as brief sentences, but get lost as soon as the material gets long or complex. In many such cases it is found that the child is reading each word separately. Word-by-word readers (sometimes called "word callers") usually do better on vocabulary or sentence reading tests than on tests of paragraph meaning. Their speed is usually low, and below their level of comprehension. They can read orally with fair accuracy material which they cannot comprehend. Many of them move their lips while reading silently, and point with a finger to each word in succession. It is often necessary for them to re-read material before it conveys any meaning to them.

These children need training designed to increase their recognition span, teach them to recognize phrases and thought units, improve their rate of reading, and give training in reading for meaning.

Some children's reading is slow but otherwise fairly satisfactory. They may be detected by comparing their scores on level of comprehension tests with scores on rate tests. Such children are not very much handicapped on tests like the *New Stanford* or *Metropolitan*, because of the generous time limits. They score considerably lower on rate tests or tests like the *Gates* or *Monroe*, in which speed plays a large part in determining the total score. On such tests they often get right most of the questions that they answer, but are able to complete only a small

part of the test within the time limit. Observation of their eye movements usually discloses a short recognition span, many fixations and frequent regressions. They often make movements of the lips and head and point to each word with a finger as they read.

Many reading disability cases show equally poor work on all types of silent reading. These cases show more extensive disability than the groups already described, and need training designed to improve all aspects of reading. In addition to the meagre vocabulary, slow speed, and poor comprehension which silent reading tests can disclose, the word recognition techniques used by these children are usually discovered to be sadly deficient when their oral reading is examined.

As an illustration of the diagnostic use of silent reading measures the following case is of interest. Konstantine was promoted from a bright 4B class to an average 5A class, marked good in everything but reading. The class was given the *New Stanford Reading Test*, on which she made a grade score of 3.0, and a group intelligence test on which her I. Q. was 91. Her oral reading was worse than her silent reading, with much guessing and many mispronunciations of all sorts. As her work was excellent in everything but reading, the teacher doubted the accuracy of the I. Q. and decided to give her special help in reading. Questioning disclosed the fact that Konstantine attended a private school every afternoon where she received lessons in reading and writing Greek, and after eliminating other possibilities the teacher decided that confusion between the Greek and English alphabets was the main cause of the girl's difficulties. For six months Konstantine was given intensive training in phonetics and word recognition, in addition to the regular class reading lessons, and then was tested again. On another form of the *New Stanford* her reading grade was 5.5, a

highly satisfactory gain of two and one-half years in six months. She was also given two of the *Gates Silent Reading Tests*. On Type C (Reading to Understand Precise Directions), her grade score was 7.0, but on Type A (Reading to Appreciate the General Significance of a Paragraph), her score was only 4.3. Since rate of reading is a more important factor in Type A than in either Type C or the *New Stanford*, Konstantine was given a rate test and the judgment of accurate but very slow reading was confirmed. This disclosed the need to change completely the direction of the remedial efforts, dropping entirely the stress on word recognition (since that had been brought up to a highly satisfactory level), and concentrating upon the improvement of rate and ability to grasp main ideas.

This case has been cited to demonstrate a number of points concerning the use of silent reading tests that should be kept in mind. One of them is the usefulness of such tests in giving greater exactness to a general impression that a particular child is a poor reader. Another is the need for a variety of measures if a comprehensive estimate is to be made. Finally, silent reading tests, even when highly analytical, can disclose what a child can read, and to a limited extent how he proceeds in reading, but they cannot by themselves serve to uncover the basic causes responsible for the child's difficulties. For this it is necessary to make a thorough analysis of his oral reading, intelligence, school history, health, personality, and home background. The analysis and interpretation of these factors will be taken up in the next two chapters.

SUGGESTED ADDITIONAL READING

- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Chs. III and VI (The Macmillan Company, New York, 1935)
- L. J. Brueckner and E. O. Melby, *Diagnostic and Remedial Teaching*, Ch. VIII (Houghton Mifflin Company, Boston, 1931)
- H. A. Greene and A. N. Jorgensen, *The Use and Interpretation of Elementary School Tests*, Ch. XIII (Longmans, Green and Company, 1936)

CHAPTER V

HOW TO DIAGNOSE ORAL READING

One can find out many things in analyzing the oral reading of a pupil that are not disclosed by measures of silent reading. When a pupil makes a wrong answer to a question based on silent reading, one cannot tell exactly why he made the error. It may have been due to errors in word recognition, to lack of knowledge of the vocabulary, to inability to understand the ideas involved, or to other reasons. In oral reading, however, one can follow the child's reading word by word and syllable by syllable and can find out exactly what kinds of errors he is most prone to make. Even when one's interest is primarily in finding out what is wrong with a child's silent reading an analysis of his oral reading is helpful.

I. WHAT TO LOOK FOR IN ORAL READING

One of the first things to find out about a child's oral reading is to discover how it compares with his silent reading. This can be done in a subjective way by having pupils read orally and silently selections from the same book. The difficulty with this procedure is the absence of clearly defined standards in either silent or oral reading, making comparison difficult. It is more satisfactory to compare grade scores on silent reading tests with grade scores on oral reading tests. Oral reading tests that can be used for this purpose consist of short stories or paragraphs that are arranged in order of increasing difficulty. They may be scored in terms of rate and errors separately or on a combined rate and error score, and are supplied with grade norms of the usual kind.

If a pupil's grade level on oral reading tests is above his level in silent reading, it is usually unnecessary to proceed much further in analyzing his oral reading ability. If he has difficulties, they are more apt to be in speed, fluency, and comprehension rather than in word recognition, and a detailed analysis of his word recognition techniques is not needed. In most reading disability cases, however, oral reading is at least as poor as silent reading and in a great many cases it is much worse. Such a finding calls for a careful analysis of oral reading with special reference to word recognition.

Fluency, Phrasing and Expression

Deficiencies in fluency, phrasing, and expression are readily noted in oral reading. Good oral reading proceeds smoothly and rhythmically. The words are grouped in phrases, and meaningful thought units are indicated by appropriate pauses and inflections of the voice. Jerkiness, hesitations, and repetitions are other defects in fluency that are easily detected. In some children these are simply indications of nervousness or self-consciousness. In many cases, however, hesitations and repetitions are accompaniments of slowness in word recognition and are employed to gain more time to decipher the next word.

One of the common defects in fluency is word-by-word reading. The word-caller plods along slowly, tending to make a noticeable pause after each word. When he does attempt to phrase his reading, he may group the wrong words together and may disregard or misinterpret punctuation marks. The voice is usually monotonous. Keeping the place with a finger is fairly common. Recognition may be slow even for familiar words. Some word-by-word readers have marked deficiencies in their word recognition techniques, while others have learned

fairly good methods of word analysis but have not outgrown the habit of reading one word at a time. Understanding and memory for what is read are usually poor in word-by-word readers.

In contrast to the word-caller, the context reader may be fairly fluent although quite inaccurate. He goes merrily along, skipping words, adding words, substituting one word for another, and when there are too many unknown words he may invent a new story as he goes along. His reading is marked by carelessness and inattention to details. He can often read a sentence correctly after being told that he made a mistake in it. In many cases of context readers, there is an inability to attack a word that is not in the sight vocabulary by any method except guessing from the context.

Such faults as reading with a voice that is too loud or too soft, or that sounds strained, should be noted by the teacher although they are not of great diagnostic significance. A voice that sounds strained ordinarily indicates uneasiness or tension during oral reading. Too much volume does not need any remedial attention beyond calling the pupil's attention to the fault. A small, weak voice may be a sign of timidity, or, especially in girls, may be the child's normal way of speaking.

Word Recognition and Analysis

There are several methods that may be used by a child in attempting to solve a word that is not immediately recognized. The word may be guessed from the context in which it is found. If it has been taught in spelling lessons, spelling it may stimulate recall. The word may be sounded out and then blended to get the pronunciation. The size and shape of the word may serve as clues, or the resemblance of the word to another word which is already known may be noticed. A good reader is re-

sourceful. If one method of attack does not succeed he tries another. He knows how to utilize the context, how to blend, and how to employ visual resemblances. Poor readers often restrict themselves to one method of attack and employ even that method poorly. It is important to find out what method or methods a child tries to use as well as how successful he is.

Some children have apparently never learned any technique of word analysis thoroughly enough to use it successfully. They know the sounds of only a few letters, and cannot blend a word when they succeed in sounding it. They have not learned to look for common recognizable parts or phonograms in a word, or to look for resemblances to words they know. They have laboriously acquired a small stock of sight words, but this is quite inadequate for their needs. They may or may not try to make use of the context. In these cases remedial teaching must necessarily start at the beginning and should consist of a thorough, intense and systematic teaching of primary grade reading.

Reversal errors are prominent in the oral reading of about one out of ten disability cases. The child who frequently reverses letters or whole words has not learned to follow a consistent left-to-right direction in reading. This tendency may result from any of several causes, among which are immaturity, difficulties with dominance, poor eye coordination, or simply failure to receive appropriate instruction. Methods which are successful in overcoming reversal tendencies all stress the development of a steady left-to-right direction in reading.

The technique of observing the first one or two letters of a word and guessing the rest is quite common. The intelligent context reader is often surprisingly successful with his guesses. Duller children also often attempt to use this technique but their guesses are apt to be quite

inappropriate. Among the commonest errors made by children who rely on this procedure are confusions of words which begin with *wh* or *th* (*who*, *when*, *where*, *which*; or *then*, *the*, *there*, *these*, etc.).

Errors on the beginnings of words are less common than errors on the middles of words and on word endings. Many children ignore endings such as *es*, *ed*, *ly*, and *ing*. The middles of words are especially apt to be mis-read. Confusions of letter sounds are common. Among the most common confusions are: *b*, *d*, *p*, and *q*; *l*, *t*, *f*, and *k*; *u* and *n*; *m* and *w*; and vowel errors, since the five vowels *a*, *e*, *i*, *o* and *u* are all of the same size.

An Oral Reading Check List

The tests that may be used in measuring oral reading will be described in the next section. These tests should not be administered and scored in a mechanical fashion. The examiner must know what to look for and how to interpret the various tendencies that may be found.

The list of questions that follows is of practical value in analyzing oral reading performance. It does not attempt to provide a complete and exhaustive list of all the kinds of errors that may be found. Its purpose is rather to direct attention to significant patterns of response that are frequently found in poor oral reading.

1. How does his oral reading compare with his silent reading?
 - a. Is his oral reading generally better or poorer than his silent reading?
 - b. Is his oral reading faster or slower than his silent reading?
 - c. Is his comprehension after oral reading as good as his silent reading comprehension?
2. How fluent is his oral reading?
 - a. Does he pause after each word?
 - b. Does he read in a monotonous voice?
 - c. Does he ignore punctuation marks?
 - d. Does he pause in the wrong places, showing incorrect phrasing?
 - e. Does he habitually repeat words or phrases?

- f. Does he hesitate frequently?
- g. Is his reading rapid and jerky?
- h. Does he skip lines or lose the place?
3. How good is he at word recognition?
 - a. Has he a large stock of sight words?
 - b. How successful is he at solving unfamiliar words?
4. To what extent does he make use of the context?
 - a. Does he attempt to guess the word from the context?
 - b. Does he substitute words of similar meaning?
 - c. Does he substitute words of similar appearance but different meaning?
 - d. Does he omit or skip unknown words?
 - e. Does he add words which do not change the meaning?
 - f. Does he add words which do change the meaning?
 - g. Does he make errors which turn the story into nonsense?
 - h. Does he invent a quite different story as he goes along?
 - i. Can he read words in context which he misreads when presented separately?
5. How does he attack unknown words?
 - a. Does he try to get the word by spelling it?
 - b. Does he try to sound out the word by letters, by phonograms, or by syllables?
 - c. Is he able to blend together the sounds of a word after he has sounded it?
 - d. Does he devote most of his attention to the beginning, the middle, or the end of a word?
 - e. Does he try to guess the word from its first letter and the context?
 - f. Does he judge the word by its general size and shape?
 - g. Does he refuse to attempt an unknown word?
6. What specific kinds of errors does he make?
 - a. Does he confuse letters of similar shape?
 - b. Does he confuse words of similar shape?
 - c. Does he tend to reverse letters, syllables, or words?
 - d. Does he make errors on long and short vowel sounds?
 - e. Does he know the sounds of the vowels?
 - f. Does he know the sounds of the consonants?
 - g. Does he know the sounds of common phonograms and two-letter blends?

II. HOW TO MEASURE ORAL READING

Informal Measurement of Oral Reading

It is possible to get a satisfactory analysis of errors in oral reading without using standardized tests. An ap-

propriate selection in a reader can be picked out, and each pupil can be called to the desk in turn and asked to read it. The rest of the class may be kept busy with seat work while the test is going on. For diagnostic purposes it is necessary to have a detailed record of exactly what errors the child makes in his oral reading. It is therefore necessary to have a duplicate copy of the test selection for each child. Experienced examiners may be able to record the child's errors on a blank sheet of paper, but this kind of record is usually lacking in accuracy. Trusting to one's general impression about the kinds of errors made is even less satisfactory. If the teacher does not object to marking up the books, he may record the errors on the pupil's copy of the book while the pupil reads from the teacher's copy. Another procedure is to mimeograph copies of the selection; this should not be done without permission from the publishers. If one resorts to handwritten or typed copies considerable labor is involved.

In addition to the trouble involved in preparing record blanks, the procedure just described is inferior to the use of a standardized oral reading test because of the variable difficulty of the selections that may be used. Since the relative difficulty of the selections is not known, it is hard to measure progress on successive tests. The cost of standardized oral tests is sufficiently moderate and the time required to give them is sufficiently short so that little is saved by trying to get along without them. Equivalent forms make it possible to re-test the pupils several times and get fairly accurate measures of progress.

Selection of Oral Reading Tests

For the classroom teacher the basic requirement for testing oral reading is a test of connected reading material. All of the children in the class should be given

such a test. The most convenient published tests of this nature for the teacher are the *Gray Standardized Oral Reading Check Tests*.¹ Such a test in most cases gives sufficient information by itself, although the teacher may want to make a more thorough diagnosis of a few of the poorest readers in the class. In that case she may use in addition an oral reading word list, in which the child gets no help from a story in his attempts to recognize single words. Tests of knowledge of phonetic elements are also useful in the extreme cases, and consume little time.

A clinic or an examiner who expects to handle many reading disability cases should have on hand a variety of tests from which the ones that seem most useful for each individual case can be selected. With the exception of the tests by Gray, all of the oral reading tests now available are included in three batteries (by Gates, Monroe, and Durrell), each of which attempts to include all the tests necessary for a thorough diagnosis and each of which must be purchased as a whole. As these batteries are not very expensive, there is no reason why a clinic should not have all three of them ready for use.

Even if one wants to make a very thorough diagnosis of a reading disability case, it is not necessary to use all of the tests in a battery. The two basic elements of an oral testing program are a test of connected reading material and a test of reading isolated words. From these one can judge the adequacy of a child's oral reading and determine the kinds of errors commonly made. In many cases this is quite sufficient. If serious difficulties in word recognition are discovered, tests of phonetic elements and ability to blend should be added. If there is still doubt about the child's method of attack on words

¹ Information about publishers, etc. of the tests mentioned in this chapter will be found in Appendix A.

a multiple-choice word recognition test may also be used. Supplementary tests that are not concerned specifically with oral reading will be discussed in the next chapter.

Recording Performance on Oral Reading Tests

All of the standardized tests of reading connected material orally require that each paragraph must be timed. For this it is desirable to use a stop-watch, although a watch with a second-hand may be substituted. It is necessary to have two copies of the test, one for the child and one for the examiner. The manual for each test contains suggestions about how to record errors. A convenient set of symbols that agrees fairly well with all of the manuals is as follows: (1) draw a circle around any word, part of a word, or punctuation mark that is omitted; (2) write R above any word that is repeated, or underline the word with a wavy line; (3) indicate added sounds or inserted words by a caret (^) and write in the added material above the line; (4) write P above any word that has to be pronounced for the child; and (5) underline any word or part of a word that is mispronounced and write above it what the child said, as phonetically as possible. An example of the scoring of an oral reading test is given in Fig. 13. With a little practice any teacher should be able to record errors quite accurately. Word lists are not timed, and all mispronunciations should be fully recorded.

Classifying and Scoring Errors in Word Recognition

There is no general agreement about the way errors in word recognition should be classified. Monroe uses a classification with ten divisions: vowel errors, consonant errors, addition of sounds, omission of sounds, substitutions, repetitions, addition of words, omission of words, refusals, and words aided. Gates uses four main divi-

The sun ^{now} pierced into my large windows. It was the opening of October, and the ^{clear} sky was of a dazzling blue. I looked out of my window and down the street. The white houses of the long, straight street were almost painful to the eyes. The clear atmosphere allowed full play to the sun's brightness.

If a word is wholly mispronounced, underline it as in the case of "atmosphere." If a portion of a word is mispronounced, mark appropriately as indicated above, for example, "pierced" pronounced in two syllables; sounding long a in "dazzling;" omitting the s in "houses," the al in "almost," or the r in "straight." Omitted words are marked as in the case of "of" and "and;" substitutions as in the case of "many" for "my;" insertions as in the case of "clear;" and repetitions as in the case of "to the sun's." Two or more words should be repeated to count as a repetition.

Record the exact nature of each error as nearly as you can. When you are unable to define clearly the specific character of an error, underline the word or portion of the word mispronounced. Be sure you put down a mark for each error. In case you are not sure that an error was made, give the pupil the benefit of the doubt. If the pupil has a slight foreign accent, distinguish carefully between this difficulty and real errors.

FIG. 13. Directions for recording errors on the *Gray Standardized Oral Reading Check Tests*, reproduced by permission of the Public School Publishing Co.

sions: omissions, additions, repetitions, and mispronunciations. The mispronunciations are further classified as part reversals, total reversals, wrong beginning, wrong middle, wrong ending, and wrong several parts. Gray makes use of an elaborate classification with sixteen major divisions and fourteen sub-headings (see Fig. 14). Durrell also uses a highly elaborate set of divisions and sub-headings. A check list devised by the writer is given earlier in this chapter.

A grade score should be obtained for the total score on tests of reading connected material and for an isolated word list, if one is used. Gates and Monroe have prepared elaborate tables for use with their own tests by which one can determine whether the number of errors of one kind that a child makes is significantly below average for children of his level of reading ability. Consulting these tables is time-consuming and does not add

Progressive Analysis of Errors in Oral Reading

[illegible]

FIG. 14. Record blank for classifying errors on the *Gray Standardized Oral Reading Check Tests*, reproduced by permission of the Public School Publishing Co. Reduced in size.

greatly to the diagnostic picture. It is desirable to classify and count the various kinds of errors, but getting a separate grade score for each kind is an unnecessary refinement.

Batteries of Diagnostic Tests

The rest of this section is a systematic description of all of the oral reading tests that are known to the writer. The descriptions of the tests are included for reference purposes, since there is at present no other source in which all of these tests are described. First the general nature of the three batteries of tests will be described, and then the specific tests of various kinds will be discussed. The general reader should look up only those tests in which he is specifically interested and then continue with Section III of this chapter.

The *Monroe Diagnostic Reading Tests* employ the *Gray Standardized Oral Reading Paragraphs* (described in the next section) for measuring oral reading of connected material, and two word lists called the *Iota Word Test* and the *Word Discrimination Test* for detecting difficulties in word recognition. The three oral reading tests are used to get a profile of errors. Supplementary tests include a mirror-reading test, a mirror-writing test, an auditory word-discrimination test, a visual-auditory learning test, a sound-blending test, and tests of handedness. Most of these will be described in the next chapter. The material is put up in the form of an individual record blank and a set of test cards.

The *Gates Reading Diagnosis Tests* are divided into fifteen sections. The first five sections of the record blank provide for measures of age, grade, intelligence, and silent reading. Part VI includes two tests of connected oral reading, the *Gray Standardized Oral Reading Paragraphs* and the *Gates Oral Context Test*. Part VII

is the *Gates Graded Word Pronunciation Test*. Part VIII includes three tests for measuring methods of perceiving words, with emphasis on detecting reversal tendencies. Part IX, visual perception techniques, includes twelve short tests for determining the child's ability to recognize the letters of the alphabet and common phonograms. The remaining sections include tests of auditory discrimination, visual perception, spelling, writing, associative learning, and memory span.

The *Durrell Analysis of Reading Difficulty* consists of a twelve page individual record blank, a set of test cards, a tachistoscope, and seven word lists. The record blank includes a detailed check list of difficulties, facilities for recording and interpreting test results, and room for recording additional data and formulating remedial plans. The test cards include four equivalent sets of reading material. Each set contains eight paragraphs, ranging in difficulty from first to eighth grade level. Two of the sets are for oral reading and two for silent reading. A card for testing ability to sound individual letters and two-letter blends is also included. The word analysis lists and the tachistoscope will be described later in this chapter.

Analysis of these three batteries shows that there is general agreement on the need for including measures of connected oral reading and reading isolated words, as well as for tests of intelligence, silent reading, spelling, and writing. Gates and Monroe include special tests for analyzing method of attack on words: in the Durrell materials this analysis is based entirely on the errors made on connected reading and word lists. Monroe includes tests of mirror reading and writing, handedness and eyedness which are omitted from the other batteries. Gates and Monroe include tests of blending ability, auditory discrimination, associative learning and memory. Dur-

rell stresses the measurement of comprehension in oral reading, a factor which is ignored in the Gates and Monroe batteries.

The Monroe tests are somewhat more expensive than the Durrell, which in turn cost more than the Gates. With repeated use, however, these differences in cost tend to even out, as the expensive parts of the Monroe and Durrell outfits may be used over and over again, and the Gates record booklets cost more than the others. The *Gray Standardized Oral Reading Paragraphs* are included in the Monroe and Gates batteries but must be purchased separately. The *Gray Standardized Oral Reading Check Tests* are the basic tests for the classroom teacher, and should be kept on hand by all reading examiners.

Tests of Oral Reading of Connected Material

The *Gray Standardized Oral Reading Paragraphs* contain eight paragraphs of increasing difficulty, ranging from the first to the eighth grade level. Every error made is recorded for later analysis and each paragraph is timed. The number of errors and rate of reading are combined to get a grade score. The test has only one form. It is used as a regular part of the Gates and Monroe batteries.

The *Gray Standardized Oral Reading Check Tests* include twenty separate tests. They are arranged in four sets: Set I for grades 1 and 2, Set II for grades 2 to 4, Set III for grades 4 to 6, and Set IV for grades 6 to 8. Each set contains five tests of equivalent difficulty. Grade norms are given separately for rate and for number of errors. Individual record blanks are provided which can be used for a detailed classification of errors. The time for testing a child varies from less than a minute to about three minutes for the slowest readers. These tests are the most suitable oral reading tests for

classroom use. The availability of five equivalent forms makes this set of tests very useful as an instrument for measuring progress in oral reading at fairly frequent intervals. In using these tests care should be taken to give the pupil the test of appropriate difficulty for him. If, for instance, he scores below the second grade norms on one of the tests in Set II, he should be given a test from Set I; if he scores above the third grade norms, he should be given a test from Set III.

The *Gates Oral Context Test* (Test VI, 2, in the Gates battery) is a story of four paragraphs, the most difficult of which is at the third grade level. Norms are provided for a combined rate and error score and also for several kinds of errors. The material is designed to provide many opportunities for errors in word recognition.

The *Durrell Reading Analysis* contains two equivalent oral reading tests of eight paragraphs each, corresponding in difficulty to the eight elementary grades. The specific errors made are recorded as in other oral reading tests. Norms are given only for rate of reading. As the child reads the first test the examiner is supposed to watch for significant facts about phrase reading, voice, enunciation, expression, and general word skills. Each paragraph is followed by questions to test comprehension. During the reading of the second test the examiner is expected to notice general reading habits such as posture, closeness of attention, pointing, and head movements, and at the end asks the child to tell as much of the story as he can remember. For the second test norms for number of memories are given as well as rate norms.

Oral Reading Word Lists

The *Monroe Iota Word Test* consists of fifty-three words printed on three cards. The child is asked to read the words out loud one by one, and his exact responses

are recorded. All but six of the words are one-syllable words, chosen to give opportunity for a variety of errors. The norms cover grades 1 to 5.

The *Gates Graded Word Pronunciation Test* (Test VII, 1, in the Gates battery) is a list of one hundred words, ranging in complexity from "so" and "we" to "preparation" and "treacherous." As with the *Iota* test, all errors in reading the words are to be recorded as exactly as possible for detailed analysis. Norms are supplied for grades 1 to 6.

Gates also includes in his battery a list of thirty reversible words (Test VIII, 1), and provides a table from which one may determine if a child's proportion of reversal errors is high or not. In the writer's experience this test is not very reliable, as some children with definite reversal tendencies have not shown them on this test. It may be omitted unless results on other tests suggest a reversal tendency and additional information about reversals is desired.

The *Durrell Flashed Word-Word Analysis Test* consists of several lists of words, ranging in difficulty from grade 1 to grade 6. The lists are designed to be used in a quick-exposure device called a *tachistoscope*.² This instrument makes it possible to expose a word for about one-quarter of a second—long enough to recognize a well-known word but not long enough for more than one quick look. If the child makes an error on a word the shutter is opened and the child is allowed to inspect the word carefully and try again. Norms are given sepa-

² Durrell's tachistoscope is a simple cardboard container into which the word list is placed. The movement of a shutter by hand exposes the word through an opening. Much more elaborate tachistoscopes with mechanically operated shutters are also available. For a discussion of the uses of this instrument see W. F. Dearborn, *The Use of the Tachistoscope in Diagnostic and Remedial Reading*, *Psychological Monographs*, vol. 17, No. 2, 1936.

rately for the number of flashed words correct and the number of analyzed words correct. The use of the tachistoscope makes it possible to distinguish between a child's sight vocabulary and the words which he can decipher if given enough time. The errors made provide a basis for analyzing the child's method of attack.

Durrell's idea of testing a child for both quick recognition and careful analysis of words is a good one. Flash cards, with a word or phrase printed on each card, have long been used to give practice in speedy word and phrase recognition. For testing purposes, the usual procedure with these cards—covering the card with a blank card, lifting the covering card for a moment and then replacing it—may be used, but is somewhat crude, and makes it difficult to keep the time of exposure approximately constant. A simple home-made tachistoscope can be easily made, and then can be used either for testing or for drill.

An illustration of a very simple tachistoscope is given in Fig. 15. It consists of a sheet of stiff cardboard with an opening cut in it, and another piece of cardboard fastened to the first by a brass paper fastener so that it serves as a shutter. The material to be exposed is printed on index cards. In operating it, the index card is placed behind the screen so that the material is behind the opening but hidden by the shutter. The screen and card are held upright with the left hand, the thumb holding the card against the screen. The right hand lifts the shutter and then lets it drop onto the top of the table. Any flash card material can be used in a device like this.

In choosing one of the three word lists just described it should be noted that the Monroe list stresses one-syllable words, and therefore is not adequate except at primary levels. The Gates and Durrell lists both cover

satisfactory ranges of difficulty and complexity. The Gates list is simpler to administer, and the Durrell list, using the tachistoscope, provides information about immediate recognition.



FIG. 15. A simple hand tachistoscope.

Multiple-Choice Word Recognition Tests

The tests just described present a printed word to the child and note the errors he may make in pronouncing it. Another approach to analyzing methods of word recognition is to pronounce a word and then ask the child to select the correct printed word from a list designed to allow him to make several kinds of errors. Two tests of this nature are the *Monroe Word Discrimination Test* and the Gates VIII, 3, *Ability to Recognize Words Spoken*. A typical item is No. 14 in the Gates test, in which the word "meat" is pronounced by the examiner.

The printed list contains *seat*, *weel*, *meat*, *atme*, *team*, and *mean*. *Seat* is the same as *meat* except for the first letter and *mean* is the same except for the last letter. *Weel* is a word of the same shape or configuration but contains different letters. *Atme* contains the same letters but in a partly reversed order, and *team* is a full reversal. There are twenty items in the test, each allowing for the same five types of errors. The *Monroe Word Discrimination Test* contains forty-seven items. Each item contains, in addition to the word pronounced, six wrong words designed to allow vowel errors, consonant errors, reversals, additions of sounds, omissions of sounds, and complete substitutions.

Gates has also included in his battery Test VIII, 2, *Ability to Recognize Words Seen*. This is similar to the test described in the preceding paragraph except that the child is first shown the word instead of hearing it pronounced. It was designed to give an indication of methods of attack used by children who are practically non-readers, and should in general be used only when children get nearly zero scores on other oral reading tests.

These discrimination tests should be employed when the examiner doubts the accuracy of his diagnosis of errors and desires additional information. In most cases a satisfactory diagnosis can be made without them. The accuracy of the error classifications used by Gates and Monroe has been challenged by Hill, who asserts that many of the errors can be classified in more than one way.³

Tests of Phonetic Elements and Blending

Because of the importance of phonetic analysis for the attainment of independence in reading, it is advisable

³ M. B. Hill, Experimental Procedures in the Study of the Process of Word Discrimination in Reading, *Journal of Educational Research*, vol. 29, 1936, 473-482.

whenever a child's oral reading is very poor to find out whether he knows the sounds of the letters of the alphabet and of common combinations of letters. Gates includes in his battery several tests (numbered IX, 1 to IX, 11) by which the child may be tested for ability to pronounce the small and capital letters, and common two-, three-, and four-letter phonograms and syllables. These tests of word elements are valuable and they, or similar tests, should be employed whenever a child shows weakness in phonetics. Durrell also includes a *Phonetic Inventory* in his battery. It is much less complete than the one presented by Gates, as it includes only the alphabet and a few two-letter combinations. Informal tests of a similar nature can easily be devised. It is important to present the letters in a mixed order when testing knowledge of letter sounds.

There are many children who know the individual letter sounds but seem to be unable to blend the sounds into words. Short tests designed to measure blending ability are included in the Gates (Tests IX, 8 and X, 1) and Monroe batteries. Informal tests of ability to blend sounds are easy to devise. Take a list of words, such as *man, hit, top, spin, mother, penny*, etc., and pronounce each word one sound at a time, as *m-a-n*. In pronouncing consonants one should be careful to avoid adding an *uh* sound. If a child cannot pronounce simple words after hearing them sounded, he is not ready to use blending as a procedure in word recognition.

Analysis of Errors in Spelling

There is a close relationship between errors in word analysis in reading and errors in spelling. Not only are poor readers usually poor spellers, but they also tend to make the same kind of errors in spelling that they make

in recognizing words. It is therefore advisable to include a spelling test as part of the procedure for diagnosing word analysis techniques. Spelling errors should be examined for the same tendencies that are looked for in oral reading. The selection of spelling tests is considered in the next chapter.

III. HOW TO INTERPRET ORAL READING

In interpreting oral reading one must keep in mind that understanding of the pupil's difficulties is the important goal. The errors made should be carefully inspected for the information that they may give about fluency, about the utilization of meaning or context, about the pupil's method of attack on words, and about the particular errors in word recognition he is most prone to make. These findings must be considered in relation to his silent reading and the other information available about the pupil.

A few cases will at this point be presented to illustrate different kinds of errors in oral reading and the procedure followed in interpreting them.

First we may consider the problem of analyzing mispronunciations. Floyd was a boy 8 years and 9 months old, with an I. Q. of 105, in the high third grade. His average silent reading score on the *Gates Primary* tests was 3.0, and on the *Gray Oral Check*, Set II, Test 1, he made 11 errors and took 140 seconds, both scores being below the norms for the middle of the second grade. His reading was slow and inaccurate in both silent and oral reading. Nearly all of his errors in oral reading were mispronunciations; there were no omissions or additions of words, and he tried to pronounce every word. A col-

lection of his mistakes from this test and other samples of his oral reading includes the following:

almost	<i>for</i>	among	first	<i>for</i>	front
party	<i>for</i>	pretty	grass	<i>for</i>	glass
rigs	<i>for</i>	rags	window	<i>for</i>	windows
were	<i>for</i>	will	her	<i>for</i>	hear
hiding	<i>for</i>	hidden	pin	<i>for</i>	pine
stood	<i>for</i>	stone	feets	<i>for</i>	feet
every	<i>for</i>	very	spot	<i>for</i>	spots
well	<i>for</i>	wall	five	<i>for</i>	four
want	<i>for</i>	wants	like	<i>for</i>	likes
cold	<i>for</i>	cool	those	<i>for</i>	these
that	<i>for</i>	there	had	<i>for</i>	has
for	<i>for</i>	from	slow	<i>for</i>	slowly
these	<i>for</i>	lies	back	<i>for</i>	black
clamb	<i>for</i>	climb	neck	<i>for</i>	kick

A classification of the errors shows one substitution (*these* for *lies*), two wrong beginnings (*every* for *very* and *neck* for *kick*), eleven wrong middles (*well* for *wall*, etc.), ten wrong endings (*feets* for *feet*, *slow* for *slowly*, etc.), four wrong several parts (*almost* for *among*, etc.) and one partial reversal (*for* for *from*). From a somewhat different point of view in classification one would note that fourteen vowels were mispronounced, mainly in the middle of words, and relatively few errors were made on consonant sounds. Several of the errors consist of the addition or omission of a final *s* or *ly*. It should be noted that people may differ on how to classify particular errors; *that* for *there* might be classified variously as wrong ending, wrong several parts, vowel error, consonant error, or as two or more of these. No uniform rules for tabulating errors have been established.

The tabulation given above did not supply an immediately meaningful interpretation of Floyd's difficulties in word recognition. For this a different approach was needed. It was noted that in all but two of these words

Floyd got the beginning of the word right. He evidently looked mainly at the first letter or two, got a vague impression of the rest of the word, and said a word he already knew which looked like the one before him and started with the same letter. In order to determine whether the vowel and consonant errors were due to lack of knowledge of letter sounds or carelessness, it was necessary to test his ability to give the sounds of the letters when presented one by one. These showed confusion about vowel sounds but no consonant errors. It was also noted that he made poor use of the context, as half of his errors spoiled the sense of what he was reading. The conclusion was drawn that major emphasis should be placed on exercises to develop the habit of paying attention to the whole word rather than just the beginning, on teaching vowel sounds and providing exercises for overcoming vowel confusions, and on getting him to use the context more effectively when faced with an unknown word.⁴

A different picture was found in the oral reading of Joseph, a dull boy in the sixth grade, whose silent reading was grade 4.3 on the *New Stanford*. On the *Gates Silent Reading Tests* he averaged at grade 3.3, with a high percentage of accuracy (84 per cent correct answers), showing that his reading was very slow. On the *Gray Oral Check Test*, Set III, Test 1, he made 8 errors in 240 seconds; the norms for the fourth grade are 6 errors and 63 seconds. His speed was therefore consistently far below his accuracy, in oral as well as silent reading. His oral reading was very deliberate, with a pause after each word and frequent repetitions. His errors were non-recognitions (he would usually make no attempt at a new word), omissions of endings such as *s*, *ed*, and *ing*, and confusions of

⁴ Remedial procedures for improving word recognition are discussed in detail in Chapter IX.

r with *t* and *s* with *d*. He made no use of the context as an aid in word recognition. The recommendations made were: (1) exercises to clear up the consonant confusions; (2) exercises on endings; (3) encouragement and assistance in attacking unfamiliar words—he had the necessary phonetic equipment but was not using it; (4) exercises to speed up recognition of familiar words; (5) reading in unison with the teacher to develop greater fluency, prevent repetitions, and develop phrasing and expression; and (6) charting progress on periodic rate tests to encourage faster reading. These recommendations do not include the training given in silent reading.

Theresa, a girl of above average intelligence in the high sixth grade, obtained a grade score of 5.8 on the *Metropolitan Intermediate Reading Test*. In oral reading her performance was at the fourth grade level for rate and third grade for errors. Her errors showed considerable versatility, including omissions, additions, and substitutions of words, reversals of word order, and mispronunciations of polysyllabic words. In reading isolated words her performance was far more accurate than in reading connected material. She had a good phonetic background and could work out the pronunciation of long and difficult words. When she came to an unknown word in connected reading, however, her usual tendency was to guess from the context rather than observe the word carefully and work it out. In addition to this habit of depending too much on the context she read slowly and in a monotonous voice, phrased incorrectly, and sometimes skipped lines. She needed training to improve phrasing and expression and directed practice in utilizing her phonetic knowledge.

Philip's errors in oral reading included many reversals of letters, (*bid* for *did*, *baby* for *body*), reversals of words (*top* for *pot*, *on* for *no*, etc.), reversals of word order (*there*

was for *was there*), and errors on the beginnings of words (*hand* for *land*, *father* for *mother*). He had difficulty keeping the place, and would sometimes jump from the middle of one line to the middle of the next line. These errors were judged to indicate a failure to establish consistent left-to-right eye-movements, and training was instituted to encourage proper direction in reading and placing emphasis on the beginnings of words.

Lastly we may consider the case of Herman, a bright thirteen-year-old doing failing work in the sixth grade. His silent reading was at the fourth grade level on the *New Stanford* and third grade on the *Gates* tests, showing again the picture of slow, laborious reading. On several oral reading tests he scored consistently at the low third grade level. His errors were of many kinds, including complete substitutions (*in the* for *is a*), reversals (*ma* for *am*), many mispronunciations in which he usually got the beginning of the word right (*scratching* for *scarcely*), and many non-recognitions. He frequently hesitated over a word, as *fee-fee-feed*. A check-up on his knowledge of phonetic elements showed that he was unsure of the sounds of most of the alphabet and could recognize hardly any phonograms. The conclusion drawn was that Herman needed a thorough grounding in practically all phases of word recognition.

No two cases of difficulty in oral reading are exactly alike, and each one must be carefully considered to try to determine why the child makes errors as well as to discover what errors are made. A thorough understanding of the case cannot be gained from a consideration of the oral reading alone, but involves taking into account all of the information available about the child; silent reading, intelligence, language background, school history, etc. In this chapter and the preceding chapter we have considered the problems of diagnosing silent and

oral reading. The next chapter will take up the investigation of the background factors which are responsible for the creation of difficulties in reading.

SUGGESTED ADDITIONAL READING

- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, pp. 228-260 and Appendices 1 and 2 (The Macmillan Company, New York, 1935)
- Marion Monroe, *Children Who Cannot Read*, Appendix (University of Chicago Press, 1932)
- Emmet A. Betts, *The Prevention and Correction of Reading Difficulties*, Ch. V. (Row, Peterson and Company, Evanston, 1936)

CHAPTER VI

INVESTIGATING THE CAUSES OF READING DIFFICULTIES

The major handicaps that are causally associated with reading disabilities have already been described in Chapter I, and the analysis of readiness for reading, silent reading, and oral reading have been taken up in the three chapters preceding this one. Before getting into the subject of remedial methods it remains to take up in detail and suggest methods of evaluating the other factors that should be considered in diagnosing a case of disability in reading.

The teacher interested in remedial reading from the classroom point of view may be somewhat dismayed by the time-consuming work that a thorough diagnosis involves. It is not to be expected that the teacher should make a complete diagnosis of every pupil; but the teacher should know what to look for, and should certainly be able to carry out the simpler diagnostic procedures when necessary. When a diagnosis is being made by a clinical psychologist or special remedial teacher there is no excuse for careless or incomplete work.

I. INTELLIGENCE AND READING DISABILITY

Accurate measurement of intelligence in cases suspected of being disabled readers is difficult because handicaps that interfere with reading may also hinder the child from showing his true ability on intelligence tests. The better individual tests such as the *Stanford-Binet* give the most trustworthy results and whenever possible an individual intelligence test given by a trained psychol-

ogist should be employed. Even on the *Stanford-Binet*, however, the I.Q. of a reading disability case may be five or ten points too low because of the weight given to vocabulary and the inclusion of one or two items requiring reading.¹

Many of the commonly used group tests of intelligence are unsuitable for use in the study of reading disability cases because their questions are presented in printed form. A child whose reading ability is poor has difficulty in reading the questions and so makes a low score even if he has average or superior intelligence. The writer has seen many cases whose group test I.Q.s were below 85 and whose *Stanford-Binet* I.Q.s were above 100. Such widely used group tests as the *Otis Self-Administering*,² *National*, *Henmon-Nelson*, *Terman Group* and *Army Alpha* are relatively useless in the study of poor readers. If a group test must be used, one should be selected which contains items that do not require reading. Group tests suitable for the first grade have been listed in Chapter III. Tests suitable for use in the first three grades include the *Pintner-Cunningham*, *Detroit Primary*, *Kuhlmann-Anderson*, *Otis Primary*, and *California Tests of Mental Maturity*.

In grades 4 and 5 the *Kuhlmann-Anderson* and *California* tests are most satisfactory. The *Kuhlmann-Anderson* tests for the fourth grade include ten sub-tests, five of which require reading and five that do not. The M.A. for the whole test usually is obtained by taking the median of the M.A.s on the sub-tests. In studying poor readers, one should get the median M.A. of the non-reading sub-tests and compare it with the median M.A. of the reading sub-tests. In the writer's experience the

¹ D. D. Durrell, The Influence of Reading Ability on Intelligence Measures, *Journal of Educational Psychology*, vol. 24, 1933, 412-416.

² Details about publishers, etc., of the tests mentioned in this chapter are given in Appendix A.

non-reading M.A. is at least a year higher in the majority of reading disability cases when this procedure is followed. As an illustration, we may consider the *Kuhlmann-Anderson* results of Clarence, who was given the test when he was 10 years and 2 months old, and in the high fourth grade. On four silent reading tests his scores averaged low third grade. On the reading sub-tests of the *Kuhlmann-Anderson* the M.A.s were 10-9, 7-8, 7-5, and two zero scores, with a median of 7-5 and a corresponding I.Q. of 73. On the non-reading sub-tests his M.A.s were 10-3, 9-8, 8-11, 8-7, and 8-3, with a median M.A. of 8-11 and a corresponding I.Q. of 88. For the total test the M.A. was 8-5 and the I.Q. was 83. It is obvious that simply averaging the reading and non-reading tests together would have obscured the significance of the results. After remedial teaching that brought about an average improvement of about a year in both silent and oral reading he was given the *Kuhlmann-Anderson* again. His M.A. on the reading sub-tests was now 8-4, showing just about the same amount of improvement as on the tests of reading ability.

The *California Tests of Mental Maturity*, available in levels from the kindergarten through high school, contain verbal and non-verbal sub-tests of several kinds. In scoring one can get separate M.A.s and I.Q.s for the verbal and non-verbal sections as well as for the total score, so that the test can be used in the same way illustrated above for the *Kuhlmann-Anderson*. From the standpoint of analyzing reading cases these tests are good at any level and are perhaps the best group tests available above the fifth grade level.

Selecting Cases for Remedial Reading

Nearly all children will show improvement when special attention is devoted to improving their reading.

When the number of pupils that can be given special attention is limited, one should try to give preference to those whose ability in reading is farthest below their potentialities. This is usually done by comparing the child's reading age with his mental age; the greater the discrepancy, the greater the room for improvement.

No test, whether of achievement or intelligence, furnishes results that are completely accurate. Most good intelligence and reading tests have probable errors of measurement ranging between two and six months. Unless the difference between two scores is fairly large, it may be due to errors of measurement. A child's reading ability should be at least six months below his intelligence level before one can be reasonably confident that his reading is definitely below expectation. A safe rule to follow is to select cases for remedial teaching in which the difference between reading age and mental age is at least six months for children in the first three grades, nine months for children in grades four and five, or a year for children above the fifth grade.

The norms for standardized reading tests usually include both reading age and reading grade norms. In planning remedial treatment, the reading grade equivalent is more useful than the reading age. Intelligence tests are scored for mental age but usually do not have mental grade scores. To convert age into grade scores or grade into age scores Table III may be used.

It is well established that in elementary school there is a tendency for bright children to do work which is above average but not up to the level indicated by their mental ages, and for dull children (who repeat grades and whose teachers keep after them) to do slightly better work than their mental ages would lead one to expect. Taking this into consideration, it has been suggested that to get a measure of reading expectancy one should average the

TABLE III. AGE AND GRADE EQUIVALENTS*

Grade	Age	Grade	Age	Grade	Age	Grade	Age
1.1	6-1	3.6	8-11	6.1	11-8	8.6	14-0
1.2	6-3	3.7	9-0	6.2	11-9	8.7	14-1
1.3	6-4	3.8	9-1	6.3	11-10	8.8	14-3
1.4	6-6	3.9	9-3	6.4	12-0	8.9	14-4
1.5	6-7	4.0	9-4	6.5	12-1	9.0	14-5
1.6	6-9	4.1	9-5	6.6	12-2	9.1	14-6
1.7	6-10	4.2	9-7	6.7	12-3	9.2	14-7
1.8	7-0	4.3	9-8	6.8	12-4	9.3	14-8
1.9	7-1	4.4	9-9	6.9	12-6	9.4	14-9
2.0	7-2	4.5	9-11	7.0	12-7	9.5	14-10
2.1	7-3	4.6	10-0	7.1	12-8	9.6	14-11
2.2	7-5	4.7	10-1	7.2	12-9	9.7	15-0
2.3	7-6	4.8	10-3	7.3	12-10	9.8	15-1
2.4	7-7	4.9	10-4	7.4	12-11	9.9	15-2
2.5	7-8	5.0	10-5	7.5	13-0	10.0	15-3
2.6	7-10	5.1	10-7	7.6	13-1	10.1	15-4
2.7	7-11	5.2	10-8	7.7	13-2	10.2	15-5
2.8	8-0	5.3	10-9	7.8	13-4	10.3	15-6
2.9	8-2	5.4	10-11	7.9	13-5	10.4	15-7
3.0	8-3	5.5	11-0	8.0	13-6	10.5	15-8
3.1	8-4	5.6	11-1	8.1	13-7	10.6	15-9
3.2	8-6	5.7	11-3	8.2	13-8	10.7	15-10
3.3	8-7	5.8	11-4	8.3	13-9	10.8	15-11
3.4	8-8	5.9	11-5	8.4	13-10	10.9	16-0
3.5	8-9	6.0	11-7	8.5	13-11	11.0	16-1

* Adapted from the *Metropolitan Achievement Tests, Supervisor's Manual* (Revised), 1937, by permission of the World Book Co. Similar age-grade equivalents can be found in the tables of norms for any standardized test that gives both age and grade scores. Unfortunately no two of the available age-grade tables agree completely, due to differences in standardization. The statistically minded will note also that such tables are based on the average of two regression lines.

child's mental age with his chronological age. The desirability of this practice is not clearly evident, as the fact that bright children in general do not live up to their scholastic potentialities is no reason for ignoring those potentialities, and the advisability of forcing the dull child to a level of achievement above reasonable expecta-

tion is questionable. Monroe³ has employed for the purpose of selecting reading disability cases a Reading Index based on a weighted average of mental age, chronological age, and achievement in arithmetic computation. Such an involved procedure has only a questionable advantage over the simple process of comparing mental age with reading age, and is too complicated for general school use.

In getting a measure of reading ability to compare with intelligence, it is advisable to include oral reading as well as silent reading. A desirable procedure is to give oral reading half the weight of silent reading in getting a total reading score.

When it is impossible to use a reasonably accurate intelligence test, another method of detecting reading disability cases may be used. The first step is to select a reading test that measures level of comprehension and has at least two equivalent forms. One form is given to the child in the usual way. In giving the other form the test is read to the child as slowly as is necessary, and his spoken answers are recorded. The test used should be one in which speed is of little importance. A normal reader will do as well or better when he reads the test himself as when it is read to him. A reading disability case will usually do much better when the test is read to him. A convenient pair of tests for this purpose has been devised by Durrell and Sullivan. They have published a *Reading Achievement Test* and a *Reading Capacity Test* which are parallel in content and difficulty. The questions in the *Reading Capacity Test*, which can be used as a group test, are read to the children and they record their answers by marking pictures. In using such a procedure care must be taken not to overlook children who score poorly on the capacity test because of poor

³ Marion Monroe, *Children Who Cannot Read*, Ch. I.

hearing or a language handicap. In general, however, the scheme is a practical and useful one.

Estimates of the mental ability of children who have sensory defects or foreign language handicaps must be made with caution. There is always the possibility in these cases that unsuspected ability may be found after the deficiencies have been corrected.

The Effect of Remedial Reading on Intelligence

Many teachers who plan to select a small number of pupils for special attention in reading find it hard to resist the temptation to select the poorest readers, regardless of their intelligence. Some of them find it difficult to distinguish between retarded readers (meaning simply those whose reading is below expectancy for their age and grade) and reading disability cases (whose reading is also well below their mental level). Others recognize this distinction but argue that the dull child will become brighter as a result of the remedial teaching.

Cases do occur in which a marked change in I.Q. is found after remedial teaching. But in most of these cases the true reason for the change is the use of a group test which gave an untrue impression of mental retardation, or the presence of unrecognized handicaps which prevented the child from showing his ability at the time of the first testing. Unfortunately there is no factual basis for a belief in the efficacy of remedial reading as a remedy for dullness. Moreover, if the dull child's reading ability is up to his mental age, relatively little return will be gained from remedial instruction.

While no radical changes in brightness should be expected, the effective functioning of a child may improve as his vocabulary enlarges, his range of knowledge expands, and his interest in school work increases. These

results, which will not show very much in intelligence test scores, are worth while in themselves.

Teachers should not make the mistake of labelling a child dull because his reading and other school work are poor. An excellent illustration of how erroneous such a conclusion may be is furnished by Richard, who entered junior high school at the age of fourteen with second grade reading ability. When Richard was in the fourth grade his teacher suspected him of being feeble-minded and referred him to a clinic for a psychological examination, the result of which showed average intelligence (I.Q. 98). The junior high school was unwilling to accept this evidence of normal mentality because of his extremely poor work, and had him examined again at another clinic. This time his I.Q. was found to be above 100. The pity of it is that the boy spent eight years in school before any real attempt was made to understand his difficulties and to do something to improve his reading.

Special Mental Defects and Reading

An early explanation of reading disabilities assumed that they were the result of brain defects which made it difficult or impossible for a child to remember and identify printed words, while having normal learning ability in other respects. The terms "congenital word-blindness" and "development alexia" represented the attitude of people—mainly neurologists—who believed that reading difficulties were caused by special intellectual defects.⁴ This point of view has gradually died out as greater success has been attained in diagnosis. While a special defect of this sort is not impossible, cases that may be properly classified as congenitally word-blind are

⁴ James Hinshelwood, *Congenital Word-Blindness* (Lewis and Co., London, 1917).

very rare. Gates⁵ has reported that in several hundred cases he did not find one that was properly described as one of congenital word-blindness, and the present writer's experience has been similar.

Nevertheless, if a child fails to show improvement after a considerable period of intensive remedial training, it would be negligent to ignore any possible diagnostic factor. One could then employ tests to determine if a child has a special difficulty in learning to associate a word with a visual symbol. Tests of "associative learning" such as those included in the Gates diagnostic battery (Tests XIV, A₁, to XIV, B₂) may be used for this purpose. They measure ability to name a picture or say a word when a visual symbol is shown, after several chances to learn the connection have been given. Some of the symbols used are simple forms such as circles and crosses, and others are more complex and resemble words in shape. Other tests of associative learning that can be used are included in the Monroe diagnostic battery and in the readiness tests by Monroe, Stevens and Van Wagenen. The measurement of associative learning as a part of diagnostic procedure is recommended only for extreme cases of reading disability, and then only when the child fails to improve after a period of remedial tutoring.

These tests of associative learning resemble the act of learning new words, and are intended to show a child's probable success in adding to his reading vocabulary. The interpretation of such tests calls for the exercise of caution in judgment. If a child does well on the test there is fairly good assurance that he should be able to learn new words without too much difficulty. Failure does not prove a definite inability to learn words, but simply shows that at the time of the test the child has little success in such a task. This may be due to the

⁵ Arthur I. Gates, *The Improvement of Reading*, Revised Edition, p. 396.

fact that the child has never learned any effective technique of perceiving and remembering words; in such cases, decided improvement can be brought about by appropriate training.

Poor memory for sequences of letters, numbers, or words may be found in children of otherwise normal mental ability. If a child's memory span is very short—for instance, if he can keep in mind a sequence of only three letters—he may have difficulty in remembering longer words. This difficulty is especially likely to happen if a sounding-blending method of teaching is used. Children with short memory spans usually do better with methods that teach words as units than with letter-by-letter methods. A short memory span for sentences is usually a sign of low general intelligence, and may indicate limited possibilities in reading comprehension. Tests of memory span are included in the *Stanford-Binet* and other individual intelligence tests. If there is reason to suspect that a short memory span is interfering with a child's reading, the Binet results should be consulted. If no Binet test has been given, one can use the memory span tests that are included in the Gates (Tests XV, 1 to XV, 4) and Monroe diagnostic batteries.

II. VISION

Types of Visual Defects

There are many different kinds of visual defects, some of which seem to be more important in the causation of difficulties in reading than others.

The three defects which are best known to the layman are nearsightedness (myopia), farsightedness (hypermetropia) and astigmatism. These are all due to structural deviations from the normal shape of the eye. The myopic eye is too long from front to back, so that light

~~focuses~~ before the retina and tends to produce a blurred impression. The farsighted eye is too short from front to back, so that light, especially when coming from a source near the eye, focuses behind the retina. With moderate amounts of farsightedness, normal or better than normal vision for distant objects is often found; it is possible for the farsighted person to get near objects also into clear focus, but long-continued attention to near objects, as in reading, tends to produce eye strain with accompanying fatigue and headaches. Astigmatism is the result of imperfect curvature of the front part of the eye, so that light rays coming into the eye are not evenly distributed over the retina; the results are blurred or distorted images and eye strain. All three of these conditions can be corrected with properly fitted glasses.

In recent years considerable attention has been paid to some defects that cannot be detected when the eyes are tested separately, but which appear when the eyes are used together. For normal two-eyed vision both eyes must be focussed accurately on the same object. This allows a fusion in the brain of the slightly different images from the two eyes. Some people have difficulty fusing their visual images. When there is no fusion, the person sometimes sees double, but more commonly the image from one eye is ignored or suppressed in the same way that a person looking into a microscope or sighting a rifle ignores the other eye. Continued suppression of the vision of one eye for a period of years may eventually produce blindness in that eye, and the person will be, for practical purposes, one-eyed. It is therefore very important to detect cases of visual suppression. A one-eyed person is not bothered by his lack of fusion and may have clearer vision in the good eye than other people have with two eyes.

Partial or imperfect fusion is more apt to interfere with

clear vision than a complete absence of fusion. When fusion is incomplete a blurred image instead of a clear one is likely, even when the person may see clearly with either eye separately. Some people can fuse the images, but do it slowly. This may not be a handicap in the ordinary use of the eyes, but may interfere with clear vision when rapid, precise focussing is needed, as in reading.

Poor fusion is often associated with a lack of proper balance among the six pairs of muscles which turn the eye-ball. When the lack of balance is extreme, the condition is called strabismus (cross-eyes or "wall-eyes"). The person with strabismus usually ignores one eye completely, and so has no interference with the vision of the other eye. Milder cases of poor muscle balance (heterophoria) occur in which the eyes turn in too much (esophoria), turn out (exophoria), or in which one eye focusses a little higher than the other (hyperphoria). Most people with these defects are able to obtain proper fusion when the eyes are not tired, but get blurred vision after extended reading or other close and exacting visual work. When the eyes are tired they may get blurred images, may see a combination of the things each eye is looking at, or may see the two objects in reverse order. There also may be a complete suppression of one eye.

Color-blindness of the usual type, which involves difficulty or inability in distinguishing reds from greens, is found in four to eight per cent of boys and is quite rare in girls. There is no evidence to indicate that it has any effect on reading ability. Weakness in ability to perceive depth (called astereopsis) has been mentioned as possibly being involved in some reading disability cases; it is related to poor fusion. A condition in which one eye forms a larger image of the object than the other eye (called aniseikonia) has been found to cause visual dis-

handicaps in some individuals; it would seem to be a reasonable cause for poor fusion in some cases.

In addition to the conditions described above there are very many ocular conditions, caused by injuries, disease, etc., that may produce poor vision. The above list contains, however, about all of the visual defects with which the school teacher or clinical psychologist needs to be acquainted.

The Significance of Visual Defects for Reading

Although many studies on the relation of visual defects to reading ability have been made, an exact statement of the degree to which poor reading is caused by poor vision cannot yet be made. One of the reasons for the discrepancies between different research studies is the fact that the subjects used and the vision tests employed are frequently not directly comparable. But there are more fundamental reasons why one cannot state exactly how much poor reading is caused by defective sight. A relatively slight visual defect may give one person acute discomfort, while another person with a more severe defect may not be bothered by it. People vary in their ability to adapt themselves to handicaps. For instance, a moderate degree of exophoria may cause one person no trouble because his ability to compensate for the tendency, that is, his duction power, is good, while a similar amount of exophoria may cause another person considerable difficulty in reading. And then, too, one must remember that poor vision is only one of many handicaps that may interfere with reading. If poor vision is a child's only handicap he may be able to become a good reader in spite of it, while if he has several other handicaps as well the combination may be too much for him.

An examination of the research in this field discloses the interesting fact that studies at the high school or col-

lege level tend to find little difference between the vision of good and poor readers, while studies of elementary school pupils generally find significantly higher proportions of poor readers with visual defects. A plausible reason for this discrepancy may be that extremely poor readers tend to drop out of school before they get very far above elementary school, so that only those with poor vision who have been able to compensate for their difficulties are to be found in the higher level studies.

The evidence seems to be unanimous that moderate degrees of nearsightedness do not interfere with reading, whether corrected with glasses or not. Reading from books does not place too much strain on myopic eyes. Many myopic children become avid readers, possibly as a compensation for their disadvantages in outdoor games. In the first grade, where much blackboard reading is done, a myopic child may be at a disadvantage. The lack of significance of this condition for reading is no reason for neglecting it, however. Myopia has a tendency to get worse as children get older, and it is essential for myopic children to have properly fitted glasses.

Farsightedness, a condition in which effort is needed to focus the eyes on near objects, is more clearly related to reading difficulties. Significantly higher proportions of poor than good readers with farsightedness have been reported by Eames,⁶ Farris,⁷ and Fendrick.⁸ The significance of astigmatism for reading is ambiguous. Since the condition, when uncorrected, tends to produce eye strain, fatigue, and headaches, one might expect it to

⁶ T. H. Eames, A Frequency Study of Physical Handicaps in Reading Disability and Unselected Groups, *Journal of Educational Research*, vol. 29, 1935, 1-5.

⁷ L. P. Farris, Visual Defects as Factors Influencing Achievement in Reading, *Journal of Experimental Education*, vol. 5, 1936, 58-60.

⁸ P. Fendrick, *Visual Characteristics of Poor Readers*, Contributions to Education, No. 656 (Bureau of Publications, Teachers College, Columbia University, New York, 1935).

have a detrimental effect on reading, but the research done fails to disclose such an effect.

That defects of fusion and eye muscle balance are related to poor reading has been fairly well established. Witty and Kopel⁹ found fusion difficulty in 29 of their poor readers and only one of their good readers, and Eames¹⁰ found poor fusion in 44 per cent of poor as compared with 26 per cent of good readers, while poor muscle balance was present in 69 per cent of the poor and 22 per cent of the good readers. The higher proportions reported by Eames are probably the result of using stricter standards. At the high school level, Farris¹¹ has reported that one-eyed pupils do better in reading than pupils who have poor eye co-ordination. In spite of the negative evidence offered by Bear,¹² Stromberg,¹³ and Swanson and Tiffin,¹⁴ it seems clear that poor fusion and eye muscle balance may be important reading handicaps to some pupils.

As for other visual defects, evidence has been presented by Dearborn and Anderson¹⁵ indicating that aniseikonia is a factor that contributes to the causation and persistence of reading disabilities, and Eames¹⁶ has called attention to the possible importance for reading of restricted visual fields. These conditions can be detected only by

⁹ P. A. Witty and D. Kopel, Factors Associated With the Etiology of Reading Disability, *Journal of Educational Research*, vol. 29, 1936, 449-459.

¹⁰ T. H. Eames, loc. cit.

¹¹ L. P. Farris, loc. cit.

¹² R. M. Bear, The Dartmouth Program for Diagnostic and Remedial Work With Special Reference to Visual Factors, *Educational Record*, vol. 20, 1939, Supplement No. 12, 69-88.

¹³ E. L. Stromberg, The Relationship of Measures of Visual Acuity and Ametropia to Reading Speed, *Journal of Applied Psychology*, vol. 22, 1938, 70-78.

¹⁴ D. E. Swanson and J. Tiffin, Betts' Physiological Approach to the Analysis of Reading Disabilities as Applied to the College Level, *Journal of Educational Research*, vol. 29, 1936, 433-448.

¹⁵ W. F. Dearborn and I. H. Anderson, Aniseikonia as Related to Disability in Reading, *Journal of Experimental Psychology*, vol. 23, 1938, 559-577.

¹⁶ T. H. Eames, Restrictions of the Visual Field as Handicaps to Learning, *Journal of Educational Research*, vol. 29, 1936, 460-465.

means of special techniques that lie outside of school psychological clinic testing practice.

The Detection of Visual Defects

In view of the great importance of conserving vision, it would be ideally desirable for every child to have a periodic examination by an eye specialist. Since the expense of such a practice is prohibitive for most schools, the common school practice is to give simple eye tests to select or screen out those whose eyes require careful examination. Even this limited program, however, is carried out inadequately.

The usual method of measuring vision in school makes use of the Snellen Chart or a similar test. The child stands twenty feet away from a wall chart and tries to read letters of different sizes. Each eye is tested separately, the other eye being covered up. A score of 20/20 is considered normal; 20/30, 20/40, etc., mean defective acuity to the extent that the child can just see at 20 feet letters large enough for the normal eye to see at 30 feet, 40 feet, etc. This kind of examination has many drawbacks. In addition to the fact that it is often administered in such a way as to allow a child to cheat and simulate good vision by memorizing the chart, it fails to detect moderate degrees of farsightedness or astigmatism and fails completely to detect even severe cases of poor fusion and eye muscle balance. The one defect it readily discloses is nearsightedness, and the defects most closely related to poor reading tend to be ignored.

The most complete set of vision tests that can be given by a teacher or school nurse is the group of vision tests devised by Betts and included, along with measures of reading readiness, in the *Betts Ready to Read Tests*. All of the material is mounted on stereoscope cards and is designed for use in a special kind of elaborate stereo-



Fig. 16. The Betts *Telebinocular* in use. Courtesy of the Keystone View Co.



Fig. 17. The Western Electric *4C Audiometer* in use. Each child is listening through an ear phone and recording the numbers that he hears. Courtesy of Western Electric Co.

scope called an *Ophthalmic Telebinocular*. The battery includes tests of visual acuity, astigmatism, fusion, eye muscle balance, and depth perception, and provides for separate measures at 20 feet distance and at reading distance. The tests can be administered to anyone from the kindergarten child to adults.

The Betts tests are unquestionably superior to the Snellen type of test in the variety of defects they can disclose. In one study in which the Betts tests, the Snellen test, and careful examinations by an eye specialist were given to 32 children,¹⁷ visual defects were indicated by the Snellen test in 50 per cent, by the specialist's examination in 69 per cent, and by the Betts tests in 89 per cent of the cases. The Snellen test was considered unsatisfactory because of the large proportion of defects it failed to uncover. The Betts tests erred somewhat in the other direction, showing defects in some cases where the specialist's examination failed to find any. This is a less serious type of error, as it is preferable to refer a child for an unnecessary examination than to ignore a genuine defect. Further comparative studies of this sort are needed. It should be recognized, however, that the Betts tests do not correspond any too well with examinations by competent eye specialists.¹⁸ It should also be pointed out that the Betts tests sometimes give inconsistent results when used with young children. Gates and Bond¹⁹ gave

¹⁷ J. B. Hitz, *An Evaluation of Vision-Testing Methods in Schools*, *Sight-Saving Review*, vol. 9, 1939, 47-52.

¹⁸ The official position of the Council on Physical Therapy of the American Medical Association, as expressed by Dr. Howard A. Carter in a letter to the writer dated Sept. 15, 1939, is as follows:

"It is the opinion of the Consultants that the Betts Charts are not superior to the Snellen Charts for estimating vision alone which is all the Snellen Charts purport to measure. It is the opinion of the Chairman that you might wish to state that the Betts Charts are used by educators but that they have not met the approval of ophthalmologists as a whole because the charts over-estimate the number of visual defects and because the findings cannot often be made to check with those of other methods."

¹⁹ A. I. Gates and G. L. Bond, *Reliability of Telebinocular Tests of Beginning Pupils*, *Journal of Educational Psychology*, vol. 28, 1937, 31-36.

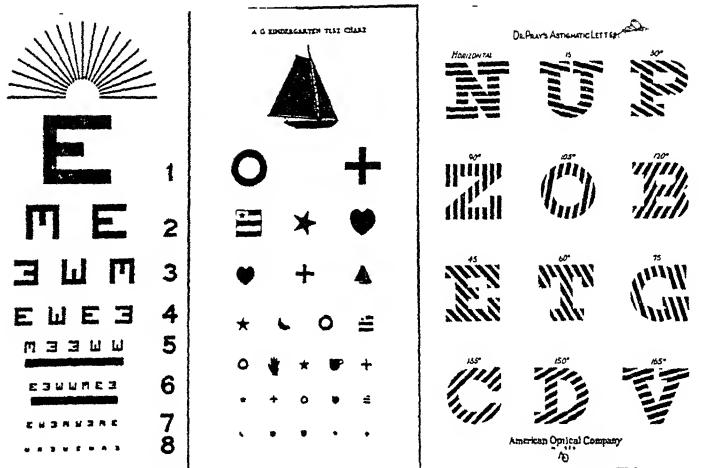


FIG. 18. Vision charts suitable for use with reading disability cases. A, an E chart; the child points to show the direction to which the E is pointing. B, a kindergarten chart; the child names the objects. C, a chart for detecting astigmatism. Courtesy of the American Optical Co.

the tests to 26 first grade children on two occasions, one week apart, and found changed results in as many as 15 per cent of the cases on some tests. This may indicate fluctuations in attention and distractibility in young children rather than any defect of the tests.

For schools that want to improve their vision testing procedures but do not wish to purchase the Betts tests, a number of suggestions can be made. First of all, instead of using the typical Snellen chart with letters of the alphabet, charts using numbers, or, better still, an E chart (in which only the letter E is used, facing in different directions) should be used to avoid handicapping the child who doesn't know his alphabet. Secondly, in order to detect the presence of significant amounts of farsightedness, a plus 1.00 diopter spherical lens²⁰ should be obtained. After testing the eyes in the usual way,

²⁰ Lenses and vision charts can be purchased through local opticians or from the American Optical Co.

each eye should be re-tested looking through the lens. A normal or near-sighted child will see less with the lens than without it; a farsighted child will see as well or better with the lens. Thirdly, large amounts of astigmatism can be detected by using charts designed for that purpose on which the astigmatic individual sees certain parts of the chart to be much blacker than other parts. Fourthly, a crude indication of defects of fusion can be obtained by having the child read the chart with both eyes open after having read it with each eye separately. If his vision is poorer when both eyes are used, a fusion difficulty is indicated.²¹ Finally, the teacher should always be alert to detect signs of visual discomfort in the appearance or behavior of a child. Among the things to look for are blood-shot, swollen, teary, or discharging eyes; inflamed eye-lids; complaints of sleepiness, fatigue, headache, nausea, dizziness, blurred, double, or distorted vision, and pain, or feelings of dryness, itching, burning, or grittiness in the eyes; strained and tense facial expressions; rapid blinking or twitchings of the face; and such habits as holding a book very close or far away, or holding the head on one side while reading.

No matter how complete the vision tests in a school may be, no teacher, nurse, or psychologist should attempt to prescribe treatment for eye defects. The school's function is to find those who are in need of expert attention; children who are found or suspected to have defective vision should be sent to an eye specialist.

III. HEARING

The degree to which poor hearing is a handicap in learning to read depends on the amount of emphasis

²¹ For better indications of difficulties of fusion and eye-muscle balance one may use, in an ordinary stereoscope, cards selected from the Wells Stereoscopic Charts or the Guibor Stereoscopic Charts.

given to oral instruction in reading. In a careful study Bond²² found significant differences in hearing between good and poor readers in the second and third grades, and reported that partly deaf children were seriously handicapped in classes where oral-phonetic methods were stressed, but made normal progress in classes which stressed visual teaching materials and silent reading. This is another impressive bit of evidence to demonstrate that teaching methods must be adapted to the learning abilities and disabilities of the individual child.

Testing Hearing

There are two simple tests of hearing that have been used. One of them is the whisper test. The child is placed a few feet away from the examiner, facing sideways so that he cannot see the examiner's mouth. The child is asked to repeat one by one numbers or words that the examiner whispers with clear enunciation. Each ear should be tested separately while the other is covered with a hand. A person with normal hearing should be able to hear a soft whisper at least seven feet away, or a fairly loud whisper at the other end of a classroom. The other simple test is the watch-tick test. In this test a ticking watch is moved toward and away from the subject until the distance at which he can barely hear it is determined. Each ear is tested separately. A person with normal hearing should be able to hear a loud, cheap watch at least thirty inches away. Both of these tests are crude and inaccurate because the testing conditions are not sufficiently standardized. While they serve to disclose marked hearing losses, they are unsatisfactory as compared with more adequate testing methods.

By far the most satisfactory way to measure hearing in

²² Guy L. Bond, *Auditory and Speech Characteristics of Poor Readers*, Contributions to Education, No. 657 (Bureau of Publications, Teachers College, Columbia University, New York, 1935).

the schools is to use an audiometer. For the purpose of singling out pupils who need careful medical examination of their hearing, audiometers are available that can be used to test as many as forty children at one time. In such a test each child listens through an ear-phone and writes down the numbers that he hears. The numbers, spoken with different degrees of loudness, are played on a special phonograph and from the child's written answers the degree of hearing loss can be readily calculated. For individual testing an audiometer²³ that measures amount of hearing loss for pure tones of low, medium and high pitches should be used. Some conditions that lead to progressively increasing deafness can be cured if treated early enough, and careful periodic tests of hearing should be part of the routine health procedure in every school. Teachers should watch for signs of poor hearing in a child's general behavior. Children with inflamed or running ears should of course be referred for medical treatment. Poor hearing should be suspected if a child asks to have statements repeated, cups a hand behind his ear, scowls or otherwise shows intense effort in listening, confuses words of somewhat similar sounds, or has indistinct speech. Teachers sometimes mistakenly decide that a child is stupid because his face has a blank expression due to his inability to hear.

Auditory Perception

It is possible for a child to have normal hearing and yet show deficiencies in auditory perception. Gates and Monroe have devised tests for determining whether a child can hear word sounds adequately. In the Gates Test XI,₁, the child is asked to repeat nonsense words

²³ Good audiometers are manufactured by the Western Electric Co. (Graybar Electric Co., distributors) and by the Maico Co., Inc., 83 So. Ninth St., Minneapolis. The Western Electric 4A, 4B, and 4C models and the Maico School model are for group use, and the Western Electric 2A and 6A and Maico D₅ models are for individual examinations.

of from three to six syllables. Poor performance may indicate poor hearing, poor auditory perception, poor memory, or simply poor effort and attention. The *Monroe Auditory Word Discrimination Test* and the *Gates Test XI, 2*, ask the child to decide whether two words pronounced by the examiner are the same or different. Another test of a similar nature is included in the *Monroe Reading Aptitude Tests*, in which the child is asked to indicate which of three pronunciations (such as basget, basket, bastet) is correct. If a child does poorly on these tests the first thing to be checked carefully is his hearing. It is advisable to have a test with an audiometer given to these children if such a test can be arranged. If hearing is found to be normal, it is possible that the child has not learned to notice fine differences in the sounds of the English language. This is quite frequently true of children brought up in homes where foreign languages are spoken. They often have trouble with English sounds that do not occur in the foreign language. They are apt to have difficulty with *v* and *w*, with *d*, *t*, and *th*, with *sh* and *ch*, with *l* and *r*, with *j*, and with vowel sounds. They need ear training to improve their auditory perception and voice training to improve their pronunciation. A special deficiency in auditory perception is indicated only when all other possible reasons for poor performance on these tests are eliminated. If a child's pronunciation and enunciation in oral reading are good, there is usually no need to be concerned about his hearing or auditory perception.

IV. OTHER PHYSICAL CONDITIONS

Muscular Co-ordination and Speech

A considerable number of poor readers are generally clumsy. They show awkwardness in walking, and have

poor skill at games and poorly formed writing. It is not known at present if poor general motor co-ordination has any causal relationship to reading disability. Monroe²⁴ thinks that it does; Gates²⁵ is inclined to believe that any effect of general clumsiness on reading is indirect, through increasing self-consciousness or through interfering with writing.

There are many kinds of speech defects, among which stuttering, lispings, slurring, and generally indistinct speech are common. Speech defects are apt to produce embarrassment in oral reading and a consequent dislike for reading if oral reading is stressed. Phonetic analysis may also be difficult for children with defective speech. They should be taught reading by methods which do not stress oral reading and phonetics, and at the same time remedial speech work should be carried on.

Illness

There is no evidence that surgical operations or the common infectious diseases are related to reading disabilities.²⁶ Prolonged illness of any kind may influence reading ability if the child is out of school for a long period of time and misses important work. Conditions such as asthma, heart trouble, tuberculosis, chronic infections, and malnutrition may lower general vitality and interfere with all phases of school work. Paralysis affecting the trunk, arm, or head muscles may interfere with adequate movements in reading, writing, or speech.

²⁴ Marion Monroe, *Children Who Cannot Read*, p. 99 (University of Chicago Press, 1932).

²⁵ Arthur I. Gates, *The Improvement of Reading*, Revised Edition, p. 397 (The Macmillan Company, New York, 1935).

²⁶ M. Anderson and M. Kelley, *An Inquiry into Traits Associated with Reading Disability*, *Smith College Studies in Social Work*, vol. 2, 1931, 46-63.

Glandular Disturbances

Witty and Kopel have suggested that disorders of the endocrine glands, especially of the thyroid and pituitary glands, may be associated with poor reading ability.²⁷ It is well known that these glands are very important in regulating physical growth and that they influence mental development also. There is no evidence, however, that glandular disturbances have any effect on reading ability aside from their effects on learning ability in general.

V. HAND AND EYE DOMINANCE

Orton has developed a theory for explaining defects in reading, writing, and speech which is based on the idea that in such defects there is interference between the two hemispheres of the brain.²⁸ According to this theory the right-sided individual develops memory traces of words in a part of the left hemisphere. He also develops memory traces in the right hemisphere which are mirror images of those in the left, but these are not used, because the left hemisphere (controlling the right side of the body) is dominant. In the clearly left-sided person the right hemisphere is similarly dominant. If, however, the individual fails to develop a clear-cut dominance of one side of the body over the other, or if he is forced to

²⁷ P. A. Witty and D. Kopel, Causation and Diagnosis of Reading Disability, *Journal of Psychology*, vol. 2, 1936, 161-191.

²⁸ S. T. Orton, Some Studies in the Language Function, *Proceedings of the American Association for Mental Deficiency*, vol. 39, 1934, 614-633. In a more recent paper (A Neurological Explanation of the Reading Disability, *Educational Record*, vol. 20, 1939, Supplement No. 12, 53-68), Dr. Orton has stated vehemently that no one but a neurologist is competent to criticize his theory. He has also put forth as arguments for the theory, the statements that employing it as an explanation of the child's difficulties is useful in eradicating feelings of inferiority, in persuading parents to pay for expensive tutoring, and in getting teachers to be more sympathetic to poor readers. A person accustomed to objective evaluation and experimental verification of theories may fail to be impressed by these arguments.

use his non-dominant hand, there will be confusion between the memory images of the two sides of the brain, and he will in consequence experience confusion in reproducing words, whether in reading, speaking, or writing. In reading he will be especially subject to errors of the reversal type. He should, according to this theory, also have greater than normal ability in reading backwards or in a mirror.

A theory that avoids reference to the brain but also stresses dominance has been stated by Dearborn.²⁹ He suggests that the left-sided person finds it easier to move from right to left, while the right-sided person finds it easier to move from left to right. When there is a conflict in dominance, there will be confusion in directional tendencies in reading. This is apt to happen, according to Dearborn, when a person is neither definitely right-sided nor left-sided, and especially in people whose preferred eye is on the opposite side from the preferred hand.

Most of the evidence that has accumulated is against both of these theories. Left-handedness has been found to be as frequent in good readers as in poor readers by practically all investigators. Preference for the left eye has been found somewhat more frequently in poor than in good readers by some investigators, but has been found just as frequently in good readers by other investigators. Mixed dominance, especially of the right-handed, left-eyed type, has been found more frequently in poor readers by two investigators, but is unrelated to reading ability according to two others. Reversal errors of the type expected by the theories are not related to handedness, and are so common in six year old children as to be considered normal responses.³⁰

²⁹ W. F. Dearborn, Structural Factors Which Condition Special Disability in Reading, *Proceedings of the American Association for Mental Deficiency*, vol. 38, 1933, 266-283.

³⁰ Recent studies on this problem include the following:

A. I. Gates and G. L. Bond, Relation of Handedness, Eyesighting, and

Cases have been described in print in which training designed to produce stronger dominance has resulted in improved reading.³¹ One often cannot draw satisfactory conclusions from these cases, however, because there were other factors in the treatment of the cases—individualized attention, appropriate material, good motivation, etc.—which might have been responsible for the improvement.

Nevertheless, one sometimes comes across a case in which changing handedness seems to have a beneficial result. As an illustration of this the following quotation from Robinson's account of remedial methods used at the Orthogenic School of the University of Chicago is presented. "If the child presents evidence of reversals, a careful analysis is made of preference of hand, foot, ear, and eye. Rarely is it possible to correct disagreement in preference, but in one case it seemed helpful. This boy of twelve years had progressed up to third grade level in reading in two years, but could not improve. The history indicated that he had preferred the left hand and his first grade teacher had forced him to write with his

Acuity Dominance to Reading, *Journal of Educational Psychology*, vol. 27, 1936, 450-456.

S. A. Kirk, A Study of the Relation of Ocular and Manual Preference to Mirror Reading, *Journal of Genetic Psychology*, vol. 44, 1934, 192-205.

A. J. Phillips, Relation of Left-Handedness to Reversals in Reading, *Elementary English Review*, vol. 11, 1934, 97-98 and 118.

C. A. Selzer, *Lateral Dominance and Visual Fusion*, Harvard Monographs in Education, No. 12, 1933 (Harvard University Press, Cambridge).

Marion Monroe, *Children Who Cannot Read*, Ch. IV (University of Chicago Press, Chicago, 1932).

P. A. Witty and D. Kopel, Sinistral and Mixed Manual-Ocular Behavior in Reading Disability, *Journal of Educational Psychology*, vol. 27, 1936, 119-134.

C. Woody and A. J. Phillips, The Effects of Handedness on Reversals in Reading, *Journal of Educational Research*, vol. 27, 1934, 651-662.

A. I. Gates and C. C. Bennett, *Reversal Tendencies in Reading: Causes, Diagnosis, Prevention, and Correction* (Bureau of Publications, Teachers College, Columbia University, 1933).

G. Hildreth, Reversals in Reading and Writing, *Journal of Educational Psychology*, vol. 25, 1934, 1-20.

³¹ Margaret A. Stanger and Ellen K. Donohue, *Prediction and Prevention of Reading Difficulties* (Oxford University Press, New York, 1937).

right hand. All tests indicated preference for left eye, ear, and foot. The staff agreed to change the preferred hand if possible. It was discussed with the boy and the idea 'sold' to him. Immediately he began to learn to write with his left hand. After a day or so it was not necessary to remind him to use his left hand. His reading improved a grade in six weeks and in three months he wrote better with the left hand than he ever had with his right hand."³²

It should be noted that Orton does not believe that changing the child's handedness is often advisable in reading disability cases. In discussing this problem he has stated that "there seems to be no reason for interfering with any pattern of handedness which has been established in the child—be it left or right or converted."³³ There is no warrant here for such undesirable practices as tying a child's right hand behind his back to force him to use the left, which has sometimes been done as a result of misplaced zeal. The important remedial procedure when there are confusions of direction in reading is to establish systematic left-to-right habits of observation.

Measuring Dominance

In view of the conclusions just reached, it seems obvious that detailed tests of dominance are not necessary in most reading disability cases. One should consider the possibility of confusion associated with incomplete or mixed dominance when reversal errors are prominent. If a child is found to be using his non-dominant hand for writing and has poor muscular control in penmanship, drawing, using tools, etc., as well as a reading disability, the advisability of changing handedness may be

³² H. M. Robinson, *Treatment of Severe Cases of Reading Disability, Journal of Educational Research*, vol. 32, 1939, 531-535.

³³ Samuel T. Orton, *Reading, Writing, and Speech Problems in Children*, p. 173 (W. W. Norton and Co., New York, 1937).

considered. Cases in which this should be done are rare.

The easiest way to get an estimate of hand dominance is by questioning. Hull³⁴ composed a list of 40 questions, gave it twice to large groups with a four week interval in between, and checked the answers against actual use of the objects mentioned in the questions. The questions that gave better than 90 per cent correspondence in all three tests were as follows :

1. Which hand holds a hammer while hammering?
2. Which hand holds the scissors while cutting?
3. Which hand distributes cards while dealing them?
4. Which hand spins a top?
5. Which hand winds a watch?
6. Which hand holds a toothbrush?
7. Which hand holds the knife in sharpening a pencil?
8. With which hand do you write?
9. Which hand cuts with the knife while eating?
10. With which hand do you draw a sketch or picture?
11. Which hand throws a ball?
12. Which hand holds a tennis racquet?

In using such a questionnaire one should modify the wording as needed and omit unsuitable questions (question 12 will be unsuitable in many cases). In interpreting the results, one should remember that writing and using silverware are the two acts that left-handed children are most often taught to do with their right hands. Complete consistency should not be expected, as there are all grades from complete right-handedness through ambidexterity to complete left-handedness. If there is a question about the dependability of the child's answers, check up on other occasions by watching what hand he uses in

³⁴ C. J. Hull, A Study of Laterality Test Items, *Journal of Experimental Education*, vol. 4, 1936, 287-290. For another good set of handedness items see W. Johnson and D. Duke, The Dextrality Quotients of Fifty Six-Year-Olds with Regard to Hand Usage, *Journal of Educational Psychology*, vol. 27, 1936, 26-36.

erasing a blackboard, holding a glass, or doing the acts mentioned in the questionnaire.

For determining eye dominance, tests are employed in which the subject with both eyes open looks at the examiner's face across the room through a small opening held about one or two feet away. Since he cannot see the examiner with both eyes because of the small size of the opening, he tends to hold the opening in such a position as to bring his preferred or dominant eye in line. A cardboard cone with the broad end covering both eyes, a tube about a foot long and an inch in diameter, or a sheet of paper with a one-inch hole in the center can be used. The examiner can usually tell from the way the object is held by the child which eye is being used; if not, the child should cover one eye at a time and report if he can still see the examiner. Another test that can be used is to ask the subject to look at a pencil point held straight in front of him about a yard away. The point is then brought by the examiner straight toward the bridge of the subject's nose until one eye turns away; the eye that retains its fixation is the dominant eye. Other tests involve having the subject peek through a keyhole or look into some object such as a toy telescope for which he can use only one eye. Several trials on two or more tests should be taken. Sometimes it is found that a child's weaker eye is the one which he prefers for sighting; dominance and greater acuity do not necessarily go together, although they usually do.

VI. THE SCHOOL RECORD

The record of a child's school career should always be examined carefully, as it often contains information of considerable value. The child's age at entering school

should be noted, as poor progress may be partly a result of starting at too young an age. His report-card marks indicate when his poor progress in reading was first noticed by his teachers, and the evidence about repeating terms or grades shows how serious his retardation was estimated to be. His attendance record should be looked over for long absences that may have handicapped him, and for frequent short absences that may indicate poor physical condition or possibly truancy. If he has changed schools or classes frequently the reasons for the changes should be investigated. Failure to acquire good reading habits is sometimes the direct result of frequent changes of teachers in the primary grades, with consequent confusion of teaching methods. Ratings on conduct, effort, and personality traits may be highly significant. If scores on standardized tests of intelligence and achievement are on the record, they should of course be noted.

The health record may give valuable information about sensory or physical defects. Defects of vision and hearing are often not detected by the routine tests used in schools and may escape the notice of teachers, so a clear physical record should not be accepted at its face value. When possible it is desirable to have a thorough physical examination given to the child. Similarly it is desirable to test the child's intelligence even if an I.Q. or M.A. appears on the record.

Teachers who have had a child in their classes in previous terms should be consulted for information that is not placed on record cards. It is important to find out what methods of teaching reading have been used with the child, especially in the first grade. Such information can be obtained only from his former teachers. They also can often contribute valuable facts about the child's behavior and conduct in class, his attitude towards reading, and his home conditions.

Such an inquiry will sometimes bring surprising results. A fourth grade teacher looked up the record of her poorest reader and noticed that he received a B for work in the first term of the first grade, but failed the second term, and was marked deficient in reading from then on. She asked the child for the name of his 1B teacher and then went to that teacher for some information about the boy. The teacher indignantly denied that he had ever been in her class, stalked into the fourth grade room, singled out the boy (whom she was not supposed to know) and asked him before the other pupils why he lied in saying he had ever been in her room. It does not take a great stretch of the imagination to infer that dislike and fear of that teacher had played an important part in creating the boy's difficulties in reading.

VII. ARITHMETIC, SPELLING AND HANDWRITING

Usually the child's school record card indicates whether or not his work in arithmetic has been satisfactory. If one wants to use a standardized arithmetic test to get a more accurate picture of the child's ability in that subject, one can use the appropriate part of any of the widely used achievement tests, such as the *New Stanford*, the *Metropolitan*, etc. For research purposes it is highly desirable to have an accurate measure of ability in arithmetic, but in practical remedial work such refinement is usually not necessary. Reading disability cases often do considerably better in arithmetic computation than in problem-solving, in which their poor reading is more of a handicap. The child who is poor in problem-solving should be asked to explain his attempts at solution step by step. It is then possible to determine if his errors are due to lack of understanding of the vocabulary, careless

errors in reading, choice of the wrong operation, skipping of a necessary step, errors of computation, etc.

It has already been pointed out in Chapter V that poor reading is usually accompanied by poor spelling, and that children are apt to make similar errors in word recognition and spelling. From the standpoint of diagnosing reading difficulties it is more important to get a clear idea of the kinds of errors a child makes in spelling than it is to get an exact grade score. Convenient short lists of spelling words are included in the Monroe and Durrell diagnostic batteries; the list of ten spelling words in the Gates battery is inadequate. Standardized spelling tests such as those found in general achievement tests may be used but are not necessary. A teacher can make up a satisfactory list by selecting words from the lists given in spellers or from printed spelling lists.³⁵ The words should include a variety of sounds, should contain non-phonetic as well as phonetic words, and should cover a difficulty range of about three grades.

In analyzing spelling errors the last part of the check list of oral reading errors given on page 107 may be used as a guide. Reversals, omissions, additions, substitutions, and ignorance of the alphabet are common mistakes of poor spellers. Other common sources of error in spelling are attempts to spell non-phonetic words phonetically (*nees* for *niece*), spelling which reflects mispronunciation (*liberry* for *library*), forgetting the end of a word while writing the first part, and lack of familiarity with the word or its meaning.³⁶

Poor penmanship occurs frequently in poor readers.

³⁵ Such as the *Morrison-McCall Spelling Scale* (World Book Company), the *Iowa Spelling Scales* (Public School Publishing Company), or the *Buckingham Extension of the Ayres Spelling Scale* (Public School Publishing Company).

³⁶ A recent work on remedial teaching of spelling is: Arthur I. Gates and D. H. Russell, *Diagnostic and Remedial Spelling Manual* (Bureau of Publications, Teachers College, Columbia University, New York, 1937).

Much of their difficulty is the result of failure to learn letter forms and inability to spell correctly. In order to test writing independently of spelling it is advisable to dictate words for a penmanship test letter by letter, or to provide a printed selection that may be copied. Since writing words is employed as one method of teaching them in both reading and spelling, it is highly desirable to improve legibility of penmanship as part of a remedial program.³⁷ One should not overlook the possibility that poor penmanship in a reading disability case may be nothing more than a reflection of the child's dislike for reading and everything that goes with it. A history of previously better writing is significant in this regard.

VIII. PERSONALITY AND HOME BACKGROUND

The great importance of emotional factors in reading disability cases has been increasingly recognized in recent years. In some cases there is good evidence that for one reason or another the child from the beginning has not really wanted to learn how to read. In a case described by Young,³⁸ failure in reading was part of a general reaction against an unfortunate home situation, in which the boy was taught by his grandmother to hate his father; the boy developed a general attitude of hostility and suspicion which interfered with his learning. Tulchin³⁹ has listed general emotional instability, flighty attention, resistance to authority, feelings of inadequacy, infantile behavior, unsuccessful rivalry with brothers or sisters, and oversensitivity to criticism as emotional factors that

³⁷ Some excellent suggestions about remedial work in penmanship may be found in: L. Cole, Heresy in Handwriting, *Elementary School Journal*, vol. 38, 1938, 606-618.

³⁸ R. A. Young, Case Studies in Reading Disability, *American Journal of Orthopsychiatry*, vol. 8, 1938, 230-254.

³⁹ S. Tulchin, Emotional Factors in Reading Disabilities in School Children, *Journal of Educational Psychology*, vol. 26, 1935, 443-454.

may create or aggravate reading difficulties. Hincks⁴⁰ has pointed out that in excitable families with high academic standards, pressure from over-anxious parents may cause a child to become tense or resistant about school work. This sometimes happens to children whose mothers are teachers. Unfavorable comparison with others convinces some children that they are stupid and cannot learn—an attitude which is not conducive to good progress. Any condition that causes a child to be nervous or in a state of emotional tension much of the time tends to interfere with his learning.

A very interesting series of cases has been presented by Phyllis Blanchard⁴¹ in which reading disability was one phase of serious emotional maladjustment; this in turn arose from unfavorable home conditions. One of them is the case of an illegitimate child, whose mother abandoned him at the age of three after the birth of a daughter. The boy became very much attached to his foster mother, but had to be removed from the foster home when she became ill. He reacted to this second major loss by extremely infantile behavior, such as losing bowel and bladder control. He became overactive, inattentive in school, could not play with other children, and lived more and more in a world of day dreams. He was given psychiatric treatment in a child guidance clinic for two years, and as his emotional difficulties were overcome, his reading improved without special remedial attention.

During the course of the treatment it came out that his mother's desertion had made him feel that he was not wanted; that his mother preferred his sister and her

⁴⁰ Elizabeth Hincks, *Disability in Reading and Its Relation to Personality*, *Harvard Monographs in Education*, Series I, Vol. II, No. 2 (Harvard University Press, 1926).

⁴¹ P. Blanchard, *Reading Disabilities in Relation to Maladjustment*, *Mental Hygiene*, vol. 12, 1928, 772-788; *Psychogenic Factors in Some Cases of Reading Disability*, *American Journal of Orthopsychiatry*, vol. 5, 1935, 361-374; *Reading Disabilities in Relation to Difficulties of Personality and Emotional Development*, *Mental Hygiene*, vol. 20, 1936, 384-413.

newly acquired husband to him. He felt that boys were not loved so well as girls, and consequently hated all women and girls. This partly accounted for his refusal to co-operate with women teachers. At times he hated his mother, her husband, and his little sister, and expressed a wish to torture and kill them. These wishes aroused conflicting emotions of guilt and fear of punishment. As part of his reaction against women teachers, he invented a phonetic "speech-writing" with which to puzzle them as a form of revenge. As the interviews continued his hostility decreased as he became able to express it. His fear of losing the affection of the psychologist and his new foster mother diminished, and his behavior and reading both improved as he developed a desire to behave in a grown-up fashion.⁴²

Others of Blanchard's cases indicate that the alphabet may have a symbolic meaning to some children. One first grade child, who had phantasies about eating up his father and sister, was afraid that he would be eaten up as a punishment for these thoughts. Letters to him represented wild animals (possibly because of alphabet blocks) who would eat people up. His poor work, according to the child, was intentional so that he would be kept home near his mother. Another child said that the letters F and E were men holding guns to shoot him; C, G, and U had their mouths open to bite him.

It is not known how large a proportion of reading disability cases arise from serious emotional difficulties such as those described by Blanchard. It is probable that

⁴² From the psychoanalytic point of view it has been suggested that reading represents oral incorporation of the father, meaning a symbolic eating of the father to acquire his abilities (it may be noted that eating the heart of a ferocious animal or a brave opponent is considered by some savage peoples to give the eater courage). It may also represent an attack on the mother as well as the father. Feelings of guilt and desires for self-punishment arising as reactions to these unconscious sadistic impulses may interfere with ability in reading. See: J. Strachey, *Some Unconscious Factors in Reading*, *International Journal of Psychoanalysis*, vol. 11, 1930, 322-331.

emotional maladjustments are directly responsible for reading failure in only a small proportion of all disability cases. It is possible, however, that when a child fails to improve under suitable remedial teaching he may need treatment for his emotional troubles more than he needs remedial instruction.

Unquestionably a great many disabled readers show emotional quirks of one sort or another. When they are studied several years after their trouble in school began, however, it is extremely difficult to determine whether the emotional disorders were instrumental in causing the reading difficulties, were the results of failure in reading, or were not causally related to the reading situation at all. Information about the child's adjustment before his failure in reading became apparent is significant; if his poor emotional adjustment started after the reading disability, it may reasonably be considered a result rather than a cause.

Any child who finds himself out-distanced by the other children is apt to be disturbed by his lack of progress. At first he is likely to try harder. If his efforts are misdirected and fail to bring improvement, he eventually develops a strong feeling of frustration. He becomes convinced that he is "dumb" or stupid. When he is called upon to read, he is apt to become tense and emotionally upset, which makes his performance even worse. He generally builds up a strong dislike for reading and takes every opportunity to avoid reading. In school, as he falls farther and farther behind, he loses interest in much of the class work and becomes inattentive, at least during reading lessons. His parents are likely to show strong disappointment because of his poor report cards and may nag, threaten, or punish him. This in turn tends to intensify his emotional difficulties and increase his dislike for school.

Different children react to feelings of failure in different ways. Some attempt to make themselves as inconspicuous as possible, and develop a meek, timid attitude that seems to say that they hope nobody will notice them. These children often develop the habit of day-dreaming to excess. Nervous habits, such as twitching, nail-biting, stuttering, and general fidgetiness develop in reading disability cases who showed no signs of nervousness when they entered school. Some complain of headaches and dizziness or resort to vomiting spells in order to be sent home frequently. One youngster played hookey whenever he had a nickel and would ride up and back on the subway until he was caught or hunger got the best of him. Fairly satisfactory compensations are achieved by some through becoming highly proficient in such school subjects as arithmetic and drawing, or by becoming outstanding in mechanical work or athletics. A few attempt to compensate for their shortcomings by boasting, bluffing, and exaggerating. One remedial case was described by his teacher as "a suitable prospect for the Tall Story Club." Still others adopt a truculent, defiant pose, as if to dare anyone—teacher included—to make fun of their weakness. The meaning of their behavior can be understood only by one who is willing to look for the reasons behind their behavior before taking disciplinary measures.

Investigating Personality and Home Conditions

Personality tests of the questionnaire or self-rating types are not very useful in studying reading disability cases. Understanding of the child's emotional make-up comes from learning his past history and from day-to-day contact with him. The first and perhaps the most important phase of remedial procedure is to get on terms of friendship with the child. After the remedial teacher

is accepted as a friend he can usually get the child to talk freely about himself, his likes and dislikes, his fears and hopes, his hobbies and interests, his friends and enemies, his family—in fact, about nearly anything. Since many of these children regard themselves as friendless, the remedial teacher is in an ideal position to establish himself as a sympathetic listener.

The picture of a child's family and home life that one gets from the child himself is often colored by the child's imagination, and should be verified from other sources. Often other teachers in the school know the parents and can give useful information about them. Members of the family can be invited to come to the school and discuss the child's problems. It is always helpful to visit the family at home, and this should be done when conditions allow it. Nothing is gained and much may be lost by trying to interview members of the family without the child's knowing about it. He is sure to find out sooner or later, and when he does his confidence in the remedial teacher will be seriously shaken.

Among the questions one should try to answer about the family are the following:

1. Who are the other people in the home? What are their ages? How much education have they had? Which ones work? What are their outstanding traits?
2. What is the social and economic status of the family? How large is the family income? What sort of house and what sort of neighborhood do they live in? Are they living at a poverty, marginal, adequate, comfortable, or luxurious level? Has the status of the family changed markedly since the child's birth?
3. How adequate is the physical care given the child? Is he provided with suitable food and clothing? Does he get proper attention when sick? Have his physical defects been corrected?
4. What intellectual stimulation is provided in the home? What language is spoken? How cultured are the parents

and other members of the family? What newspapers, magazines, and books are available in the home? How much has the child been encouraged to read?

5. How is the child treated by his parents? Do they love him, or are there indications of rejection or of marked preference for other children? What disciplinary procedures do they use? Do they compare him unfavorably with other children, or regard him as stupid? Are they greatly disappointed in him?
6. How is the child treated by his brothers and sisters? What do they think about him? Do they boss him or tease him about his poor ability?
7. How does the child feel about his family? Does he feel neglected or mistreated? Has he feelings of hatred or resentment against members of his family? Does he resort to undesirable behavior in order to get attention?

. In conclusion, it seems advisable to point out once more that in the majority of cases one cannot single out a particular handicap as the sole factor that is responsible for the child's disability in reading. More often than not, investigation will show the presence of several handicaps, any one of which may have interfered with progress. One should not prescribe glasses and ignore a seriously maladjusted home situation, or emphasize a frequent change of schools and overlook a hearing defect. A thorough diagnosis takes into account every possible factor and by a process of elimination makes possible an explanation of the child's difficulties that is unbiased and comprehensive.

SUGGESTED ADDITIONAL READING

- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Ch. XII and Appendix I (The Macmillan Co., N. Y., 1935)
 Emmet A. Betts, *The Prevention and Correction of Reading Difficulties*, Chs. VI, VIII, X, and XII (Row, Peterson and Co., Evanston, 1936)

CHAPTER VII

BASIC PRINCIPLES OF REMEDIAL READING

The need for improved methods of teaching reading is at present widely recognized. More and more school systems are coming to realize the fundamental importance of reading as a basic cornerstone of the edifice of education, and the necessity for providing in a more adequate fashion for those pupils whose progress in reading is not up to standard. The term "remedial reading" is generally applied to all methods of teaching reading which are aimed at the goal of improving the ability of retarded readers. This chapter is concerned primarily with general principles that apply in all types of remedial reading. Following chapters will take up specific problems involved in the selection of materials and the adaptation of instructional methods to the overcoming of various difficulties.

I. THE CHARACTERISTICS OF REMEDIAL TEACHING

It has been said that remedial teaching is nothing but good, effective teaching; that the only difference between remedial teaching and ordinary teaching is that remedial teaching is done more thoroughly, more systematically, and more efficiently. There is a good deal of truth in such a statement. There is nothing magical about remedial work. On the other hand, there is more to remedial teaching than thoroughness and system. Some teachers who have tried remedial work have assumed that what the pupils needed was drill and more drill. They have used the same general methods, have employed the same materials, and have aimed at the same goals as in

their regular class teaching. The results in such cases are usually disappointing.

Basing Remedial Instruction on Diagnosis

When a car is towed into a garage out of commission a good mechanic tries to find out exactly what has gone wrong with it—to locate the particular part that is defective or to discover what adjustment needs to be changed. Effective remedial teaching is similarly based first of all on an attempt to find out what is wrong, and in a similar way involves concentrated effort to improve the phases of performance which are deficient.

The slogan “teach, test, re-teach” has recently gained considerable popularity. It sums up very briefly a good deal of educational wisdom. It points out the need for accurate measurement of the success of pupils in mastering the subject-matter to which they have been exposed, and the desirability of emphasizing in review the particular phases of the work that escaped them the first time. The teacher who has acquired this point of view is applying the basic principle of remedial teaching in his everyday work.

When children are scheduled for remedial work, the slogan needs a little modification. It now should read, “test, teach, re-test.” The pupils have failed to master the material when it was first taught to them, so the teacher starts with testing to determine what needs to be re-taught. On the basis of his results he plans an appropriate plan of teaching to overcome the difficulties which are apparent. After proceeding with this type of instruction for a while it is necessary to test again to see whether the instruction has been effective. Sometimes the re-test shows that the difficulties which were present at the beginning have been overcome but that new difficulties are now disclosed. It then becomes necessary to plan an-

other teaching program in the light of the new information and to continue in this way until achievement is generally satisfactory.

Starting From What the Pupil Knows

Laying a foundation before putting up a superstructure is as important in educational work as it is in building construction. In arithmetic it is accepted that a knowledge of number combinations is essential for progress in computation, that addition should be taught before multiplication, etc. The sequence of instruction in reading is not as clearly established and stages of progress are not as clearly defined as in arithmetic, but the same principle of laying the necessary foundation before proceeding to a higher level holds good. If a twelve-year-old has second grade reading ability, his instruction should start at the second grade level. If he has marked weaknesses in word recognition, those must be overcome before one can expect to get satisfactory results from instruction designed to increase rate.

Selecting Appropriate Material

The first important problem in the selection of materials is to find reading of the appropriate level of difficulty. The necessity of providing pupils with material which they can read without too much difficulty can hardly be overemphasized. The interest value of the reading is another very important problem, since pupils try hardest on material that they like, and older boys and girls often express disdain for books written for younger children. An abundance of varied types of books and exercises should be available if a well-rounded program of reading is to be followed. The selection of materials is considered in detail in Chapter VIII.

Arousing Motivation

Perhaps the most important problems in remedial instruction are those which are concerned with arousing interest and securing effort. Without good motivation a remedial program is sure to be ineffective.

With many children arousing interest in the remedial program is no problem. When they are told that the teacher has a special interest in their progress, believes that they can do much better work, and wants to give them special help to improve their reading, their immediate response is favorable. Confident assurance that they can learn to read as well as other children do is all that is needed to arouse an eager desire to begin. It is often helpful to explain to a pupil that the intelligence tests show that he is normal or bright, and not stupid as he may have thought. Explaining that the pupil has developed bad habits that have prevented him from reading well, and that he can learn better habits, is also helpful.

On the other hand, the teacher will often find a retarded reader who is resentful, suspicious, or watchfully on guard. His experiences in school have not been such as to produce an optimistic or trusting attitude. The teacher's first task is to arouse his interest and develop in him confidence that he can improve. He must be careful to maintain an attitude of friendly interest and to be sympathetic and encouraging at all times. Sarcasm, ridicule, and disparagement must be avoided at all costs. Teachers are only human and sometimes, after repeated efforts with a child seem to have failed to bring results, the temptation to lose one's temper is great. But on such occasion, one remark such as, "You don't pay attention, why should I waste my time on you," or "Why must you be so stupid?" may break down the progress of weeks

and destroy the little confidence that the child may have begun to develop. One should try to discover and make use of his interests, and hunt for legitimate reasons for giving him praise and recognition. Nearly all children will eventually react favorably to such an approach.

Nicholas was a boy ten years old, starting his fourth term in the 3A grade. All of his retardation was due to his poor reading. His new teacher found that Nicholas had an antagonistic attitude toward teachers and would hardly ever speak, even to answer a direct question. She realized that as long as he kept that attitude, remedial work with him was impossible. After many stratagems failed, she started a class discussion on the topic "My funny dream," hoping that this would appeal to him. Nicholas was interested in the dreams related by the other children. "After practically everyone had spoken, I asked him if he had ever had a dream. He said, 'Yes.' I then asked whether he would like to tell us about. We would love to hear it. I felt overjoyed when he rose from his seat and went to the front of the room. It was the first time he had ever addressed the class. This was his dream: 'Once I had a dream. I wore a glove. A boy threw a ball. My glove moved—' With that he broke off, very much confused, his face reddening. I realized that this was where his dream had ended and so I said, 'That ball hit you, didn't it?' He said, 'Yes,' very much surprised that I knew what had happened. Then I asked, 'Weren't you glad to wake up and find it was only a dream?' Nicholas again answered, 'Yes,' and again registered surprise at my understanding. His dream gave me an inkling as to his interests. He liked ball and so during recess I organized punch ball teams with Nicholas as captain of one of them. He gained favor in the eyes of the other boys since he proved himself quite adept at ball-playing. I could see he was be-

ginning to lose some of that reserve he had built up about himself. The day he came up to me of his own accord, to tell me of an incident that had happened outside of school, I knew that at last Nicholas would let me help him."

This illustration has been presented to show that a resourceful teacher may break down the reserve of even the most uncommunicative child. Naturally the particular approach used in this case may not work at all with another child, but the general principle involved is almost certain to succeed if intelligently applied.

Sustaining Interest and Effort

The general principles involved in maintaining interest and motivation are the same in remedial teaching as they are in all teaching. In general, motivation in remedial reading depends on three general factors: the way the child is treated by his teacher, the extent to which the subject is made attractive and interesting, and the degree to which he experiences success in it. The first of these has been already considered. Some of the important principles involved in the other two factors will now be discussed.

It is necessary to establish from the very beginning a feeling of successful accomplishment. Reading materials should be used which are well within the child's abilities. It is often advisable to begin with materials that are one or two grades below the child's apparent reading level, to make sure that he will experience success from the start. Care must be taken not to introduce too much new material at one time. As the child's reading improves the difficulty of the materials should gradually be increased.

Every attempt should be made to utilize the child's interests. If his only apparent interest is in football or

machinery, one should try to give him reading material on that subject. It is often difficult to find reading material which appeals to the interests of older children and at the same time is easy enough for them, and for that reason it is often necessary to write special stories for them. Nearly all of them enjoy reading stories that they themselves have dictated. If a boy is interested only in trashy wood-pulp magazines, one should keep in mind that it is better for him to read trash than not to read at all. He can usually be interested in red-blooded fiction of a better sort in a little while. After a good start is made in overcoming his difficulties there will be time to broaden his interests and elevate his tastes.

The principle of celebrating a child's successes is very important in remedial teaching. Every sign of improvement in the child's work should be noted and praised. Nothing is more stimulating to a child than visible evidence that he is making headway. Progress charts of various kinds should be used freely. The colored stars, paper bunnies and pine trees that appeal to very young children often seem babyish to remedial cases, so more appropriate types of progress records should be used. Some of the types of charts that appeal to older children are: (1) the ordinary bar graph; (2) modifications of the bar graph in the form of a thermometer, or adding floors to a sky-scraper; (3) a race around a race-track, using a tiny cut-out auto or horse attached by a pin; (4) a trip across the country or to the North Pole, using a cut-out train or airplane and a map. Other variations will occur to the reader. It is desirable to have a separate chart or graph for each different type of remedial exercise that is used. The units of improvement should be small enough so that progress can be recorded at frequent intervals. With remedial cases it is usually more desirable to have a child compete with his own record than to compete with

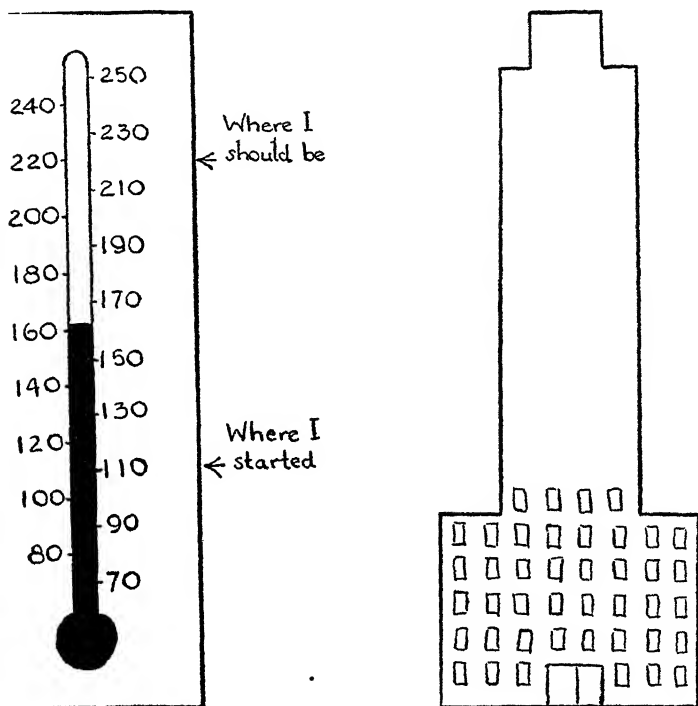


FIG. 19. Individual progress charts. Left, thermometer chart for recording improvement in rate of reading. Right, skyscraper chart for recording the completion of units of work; as a unit is finished the pupil draws in the windows of another floor.

other children, although competition between children is often effective when they are doing about equally well.

Variety adds spice to the remedial program. Children, even if highly motivated to improve their reading, often get tired of doing the same thing again and again. The resourceful remedial teacher has available a number of different kinds of activity and sees that a child does not continue work on any one of them for too long a stretch.

The spirit of play is favorable to effective learning.

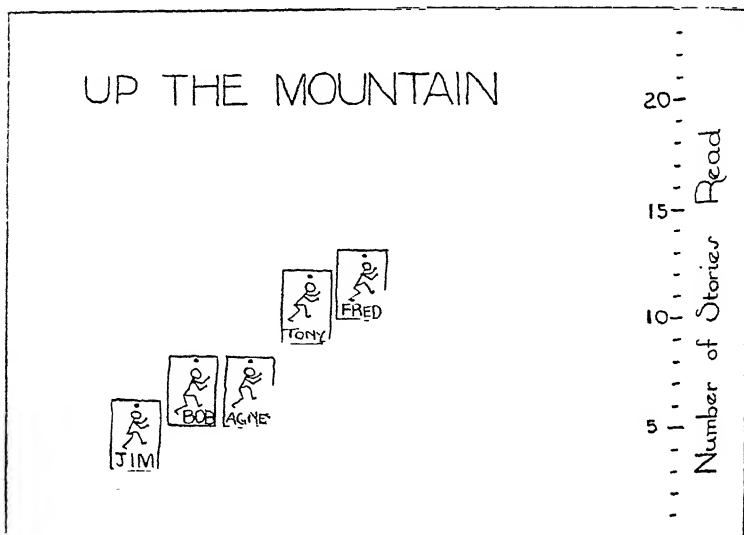


FIG. 20. Progress chart suitable for use with a small remedial group of younger pupils; provides recognition for small amounts of progress.

Dull and monotonous drills can be transformed into joyous activities by making them part of a game. Almost any indoor game that children like to play can be modified so as to form a basis for useful instruction. For instance, most children like to play the game of fishing, in which they try to lift up cardboard fish with metal rings or paper clips attached, by means of a small magnet hanging from the end of a stick. A word or phrase can be printed on each fish; if the child reads it correctly he keeps it, otherwise he has to put it back. Baseball can be played between teams by calling a good reading performance a hit and a poor one an out. Spin-the-pointer games are easily adapted to practice in phonetic analysis or word drills. The variety of remedial games that can be devised is almost endless. Games of this sort cannot be employed as a major teaching method, but are effec-

tive when used as accessory devices for stimulating interest.

Enlisting the Co-operation of the Family

The importance of home conditions as causes of unfavorable emotional reactions to reading has been discussed in the preceding chapter. Naturally, the remedial teacher should keep track of how the child is treated at home during the remedial work. With the best of intentions parents can sometimes defeat the work of the teacher.

William (I.Q. 105) was a difficult problem when he entered grade 3B after repeating the preceding grade. He was totally uninterested and created disorder by bothering the children around him. His teacher devoted a great deal of attention to him and succeeded in getting him to work hard at his reading and other studies. After a few weeks she noticed that his work was getting worse again and that he was getting increasingly nervous and restless. The mother was invited to come to school and told the teacher that she was trying her best to help. She kept William in the house studying every afternoon, and his father quizzed him every night and beat him when he did not know his lessons.

William's parents were not unusual, but reacted in the way that many parents do when they try to help in remedial work. They are so anxious for success that they lack the patience to allow the child to learn at his own rate of speed. In consequence they become easily discouraged and emotionally tense, and sometimes resort to punishment in an attempt to spur the child on to better work. While some parents may be able to help considerably in the remedial work, it is generally best to ask them not to interfere with the teacher's efforts. Since so many parents of poor readers believe that their chil-

dren are stupid when the child is really normal or bright, they should be informed of the child's potentialities. They should be advised to praise the child for signs of effort and for any improvement, and to avoid disparagement or adverse criticism.

II. THE ORGANIZATION OF REMEDIAL READING

Remedial Reading in the Classroom

Many different schemes have been worked out to modify school organization and classroom teaching methods so as to give more effective attention to the needs of poor readers. First of all there are plans for grouping pupils in such a way that all the pupils in one class have approximately equal ability and so can be taught as a unitary group. There are three main ways of attempting to accomplish this objective. (1) A great many large schools follow the practice of grouping the children in each grade into separate classes on the basis of intelligence test scores or a combination of intelligence and scholastic achievement, so as to get homogeneous grouping. From the standpoint of reading instruction the difficulty with this plan is that even when such grouping is employed, wide differences in reading ability are still found in each class. (2) Some schools have adopted the practice of scheduling reading for the same period in all classes. For this period pupils are sent to classes organized on the basis of reading ability regardless of their official grade or standing in other subjects. The major difficulty with this method is that it tends to interfere with the integration of reading with other subjects in the curriculum. (3) Special remedial classes may be established for pupils whose reading ability falls far below the requirements for the regular course of study. This plan has been adopted mainly by junior and senior high schools. It is not uncommon

to find a range of several grades in the reading ability of the pupils in such classes. A detailed consideration of problems of classifying students for reading instruction will be found in Chapter XII.

The other group of procedures includes all plans which attempt to provide differentiated instruction within the classroom. Most common of these are plans for dividing the pupils in each room into small groups, each of which is given a different type of instruction in reading. Other plans are based on the principle of individualized instruction for each pupil. Methods of individualizing classroom instruction in reading are taken up in detail in Chapter XIII.

The shortcomings of homogeneous grouping as a solution to the problem of individual differences have been increasingly recognized in recent years. The difficulty with these plans is that only rarely are the pupils sufficiently equal in ability to make uniform instruction completely effective. The idea of providing differentiated teaching within the classroom is becoming and deserves to become increasingly popular.

Individualized Remedial Teaching

There are many children who need more help and attention than they can be given under most classroom conditions. Many schools are so organized that the teachers are not encouraged to individualize their teaching or provided with the materials which individualized methods require. Even when small-group instruction or individualized attention is given in the classroom, there are usually some children who are so far behind or whose difficulties are so different from those of the other children that they do not seem to profit from teaching which is highly beneficial to the others in the low reading groups.

Some individualized remedial teaching of reading is done outside of the schools by psychologists in child guidance clinics and by private tutors. The number of children who are reached in this way is small, however, and any adequate solution of the general problem must be worked out in the schools. Some schools rely on the regular teachers to give individual coaching to pupils who need it and set aside special periods for that purpose. Others expect the teacher to give individual help but do not provide time in the schedule for it, or ignore the problem altogether. Still others have added to their staffs special remedial teachers who devote part or full time to individualized teaching.

Classification of Pupils for Remedial Reading

When a school is being organized for classroom remedial work in reading, standardized intelligence and reading tests should be given to all of the pupils. It is better to give the tests near the end of a term than at the beginning of a new term so as to avoid losing time in applying the results. After the tests have been scored, the pupils should be sectioned into classes according to one of the plans described above. Each teacher should be provided with a copy and interpretation of the scores of his pupils and with general recommendations concerning the kind of instruction they seem to need.

For the teacher who wants to subdivide his class into groups for reading instruction the first step is to analyze the reading needs and abilities of the individual pupils. The teacher may employ the results of standardized tests or rely on observations of the pupils' work in class; preferably he should utilize both sources of information. Both silent and oral reading skills should be considered. After the pupils' abilities have been appraised they can be divided into groups each of which has approximately

equal reading ability or needs a special emphasis in reading instruction.

A special remedial teacher is usually able to work with between twenty and thirty children. This means that not more than one or two children from each classroom can be selected, and that it is therefore important to choose those children whose need for remedial help is greatest and who are most likely to profit from it. The usual procedure is simply to ask each teacher to recommend the pupils who need help badly. The classroom teacher will usually make good choices but will sometimes overlook needy children and select others who are not good remedial prospects. When records of intelligence and reading tests are available it is a simple task to pick out the pupils who show marked discrepancies between their mental ages and their reading ages. The standardized test results should not be used instead of the teachers' recommendations but rather as an additional source of significant information.

The Size of the Remedial Group

The private tutor or clinical worker naturally sees one child at a time. The classroom teacher who wants to give individual help to some of her pupils should not attempt to handle more than one child at a time, at least until he has acquired some experience in remedial teaching. When a teacher is specially assigned to remedial work, however, it is generally feasible and practical to meet the children in small groups of from three to seven children. The saving as compared to teaching one child at a time is obvious. The small group is not only economical but also has definite psychological advantages. The group is small enough to allow each child to receive individual attention, yet retains many of the desirable features of a classroom situation. It is gener-

ally good for a child to know that he is not the only one who has a handicap, and he may take courage and inspiration from the progress of other members of his group. In many exercises and drills the children can work in pairs or can take turns at testing each other, thus relieving the teacher of some routine work and giving her more time for planning, testing, and other necessary work. Games can be introduced in which all of the children in a group can take part. It of course takes more time to plan a lesson in which five or six children are kept busy each doing something different than it does to plan for one child. Only an exceptional remedial teacher can do satisfactory individual work with a group larger than five or six, and at the beginning it is wise to start with groups smaller than that.

Arranging a Remedial Schedule

The time of day has relatively little effect on the learning ability of children, so special remedial reading periods may be scheduled for any time that is convenient. The teacher giving special coaching to one or two pupils may meet them before or after school, during assembly periods, or at any other time when the necessary minutes can be found. A regularly assigned remedial teacher usually meets several different groups of children during the day and must schedule them for regular periods. It is desirable to arrange the groups so that the children in one group are at about the same level of reading ability, although it is not necessary. It is also desirable to avoid as far as possible any encroachment on the time required for other necessary activities. The best time to give a child a remedial lesson is the period when the rest of his class is having reading or literature. One should try to avoid interference with lessons in other basic subjects such as arithmetic. It is often possible to reduce con-

flicts to a minimum by conferring with the classroom teachers. When conflicts cannot be avoided, one should remember that the remedial work is for the time being the child's most important school activity and should take precedence over other subjects.

Like any other form of systematic teaching, remedial reading should be scheduled at regular, frequent intervals. One cannot usually expect to get good results if one sees a child only once or twice a week. Satisfactory results have been achieved with three remedial periods a week, although it is probably desirable to have a remedial period every day. The length of the period should in most cases be between thirty and forty-five minutes. Periods shorter than that are not as effective because too large a proportion of the time is spent in getting started and in clearing up. Children whose attention is flighty or who tire easily may be kept occupied through the period by having a variety of things to do and changing their activity every few minutes.

III. HOW TO MAKE A CASE STUDY

After a child has been selected for intensive study, the teacher should spend the first remedial period or two getting acquainted with the child and getting the child into the proper frame of mind for the diagnostic and remedial work. The school records should naturally be consulted as soon as possible. Testing may be started as soon as the child seems ready to co-operate. One should be careful not to give too many tests at once; the testing program can be spread over several periods, and some of the tests can be given after remedial work has been started. It may take weeks before one has an adequate picture of the child's emotional make-up and of his home background. The need for delaying remedial treatment

until the diagnosis has been fairly well completed can be explained to older pupils in the upper grades or in secondary school. With young and immature pupils it is advisable to begin the remedial work as soon as possible, even though the remedial procedures may have to be changed as soon as a more complete diagnosis has been made. When the diagnostic evidence has been collected it is necessary to consider the complete picture and arrive at conclusions about what the child's major difficulties in reading are, what seem to be the most reasonable explanations of how these difficulties have come about, and what remedial procedures should be employed to overcome them. After the remedial work is under way one should check up periodically with informal and standardized tests to determine the effectiveness of the procedures that are being used and to find out if a shift in methods should be instituted. Before finishing work with a case one should of course re-test with equivalent forms to find out how much progress the pupil has made.

In writing up a report of a case study it is advisable to follow a fairly definite outline. This is fairly good insurance against omitting important information, as well as an aid to a person reading the report. The writer has found the following outline to be useful as a guide in writing up remedial reading cases :

A. Objective Data

1. Child's name.
2. Date of birth and age at beginning of study.
3. School grade at beginning of study.
4. Intelligence test data, including name of test and form, date of administration, M.A. and I.Q.
5. Silent reading test scores, including name of test and form, date of administration, reading age, and reading grade.

When separate norms are available for parts of

the test, the scores on the parts should be listed as well as the total score.

6. Oral reading test scores, including name of test and form, date, and reading grade.
7. Results of standardized tests in other school subjects, if such tests have been given.

B. Health Data

1. Results of vision tests and other evidence about vision.
2. Results of hearing tests and other evidence about hearing.
3. Summary of child's present health status.
4. Summary of child's health history.

C. Home Background

The questions listed on p. 166 may be used as a guide in summarizing information about home background.

D. Child's Personality

1. Statement of outstanding personality traits, with illustrations.
2. Child's interests in reading, school, and play.
3. Child's attitudes toward teachers, playmates, and family.

E. School History

1. Record of progress through the grades.
2. Marks in reading and other subjects.
3. Attendance record.
4. Notations about conduct and general behavior.
5. Methods of teaching reading used by former teachers.

F. Interpretation of Reading Test Results

1. Interpretation of silent reading performance.
2. Interpretation of oral reading performance.

G. Summary of Diagnosis

1. Summary of outstanding difficulties in reading.
2. Summary of factors causally related to the child's difficulties.

H. Recommendations for Remedial Treatment

I. Description of Remedial Treatment

The description of treatment should be given in detail. Preferably a chronological order should be followed, describing procedures used at the beginning and explain-

ing changes made in procedure as the remedial work progressed. Methods should be described in sufficient detail to allow others to reproduce them.

J. Evaluation of Results

1. Tabular summary of initial test scores and re-test scores.
2. Evaluation of progress shown by the tests.
3. Evidence of change shown in the child's general school work.
4. Evidence of change shown in the child's personality and behaviour.

Rigid adherence to an outline such as that given above is not absolutely necessary, but a systematic procedure should be followed. Some cases are more complex than others and need to be described in much greater detail. Three illustrations of case studies will now be presented, one at the primary level, one from the intermediate grades, and one at the secondary school level. They will serve to show variations both in diagnostic and remedial procedures and in methods of writing up the case.

A Case Study at the Primary Level

Charles Grade 2B
 Date of Birth : 8/18/28 Age : 8-6
 Intelligence : Haggerty Delta 1, Form 1, 2/18/37 : M.A. 7-7,
 I.Q. 89

Reading Test Results

	<i>Date</i>	<i>Reading Age</i>	<i>Reading Grade</i>
Gates Primary			
Type 1, Form 1	2/23/37	7-6	2.2
Type 2, Form 1	2/24/37	7-7	2.3
Type 3, Form 1	2/25/37	7-4	2.0
New Stanford Reading Test,			
Form X	2/26/37		
Vocabulary			Below norms
Paragraph Meaning			Below norms
Gray Oral Reading			
Paragraphs	2/26/37	Zero score	1.5

Health. Eyes normal according to Snellen Chart, 20/20 in each eye. Teeth very poor; many cavities. Hearing normal. Very small and emaciated in appearance; about 5 pounds underweight for age and height. Usual childhood diseases.

Home Background. Charles has a most unhappy home life. His parents constantly quarrel and show little interest in Charles or any of the other seven children. The home is a four room shack, and is kept in a filthy condition. The parents are illiterate peasant immigrants and speak their native language in the home. The father is an unskilled laborer who drinks and is often out of work. The school nurse reports that on one of her visits to the home, the father was drunk and hurled a chair at the mother. Charles and the other children who are in school are given free lunches and often have to be given clothing by the school.

Personality. Charles is shy and becomes easily embarrassed. There are days when he scarcely utters a word and seems quite depressed. At the beginning of the term he took no part in any reading activity, but did show some interest in number work. He is the type of child who needs constant encouragement and praise. He seems to feel keenly the fact that the other children in the class come from much better homes. While in the first grade, Charles went to the circus with the group and was sick afterward for two days. This year a trip to a dairy was planned and Charles was the only child who showed no interest in the prospect; he stayed at home on the appointed day. His emotional instability would seem to be the result of his disorganized home life.

School History. Charles entered the first grade at the age of 7-1. He attended regularly and was promoted to the second grade. He was marked poor in health, excellent in conduct, and fair in work. While in the first grade he would read for the teacher privately but was too shy to read before the class. His first grade teacher stated that during the first five months of school he was a perfect silent wonder. In the second grade his work has been very poor.

General Summary of Diagnosis. Charles is slightly weaker in paragraph reading than in word recognition and sentence reading. He is six months behind his actual grade position according to the *Gates* tests; his performance was below the

norms on the *New Stanford*. On the *Gray Oral Paragraphs* he made nine errors in the first paragraph, getting a zero score and a grade score of 1.5. He is a word by word reader and has little skill in reading for meaning. His deficiencies have probably been caused by the following: (1) poor physical condition; (2) foreign language handicap; (3) limited experience due to poor home background; (4) overemphasis of the mechanics of word recognition; and (5) underemphasis on thought-getting.

Recommendations for Treatment. (1) Give an abundance of easy reading material for silent reading; (2) Broaden the child's vocabulary of meanings, by building his background of experience; (3) make a picture dictionary using sentences; (4) flash card drill to encourage getting whole phrases and short sentences in a single span of comprehension; (5) use first grade reader with an accompanying work-book; (6) prepare true-false questions to be answered after reading a story; (7) use oral questioning after silent reading; (8) encourage him to prepare stories to read to the group and really entertain them; (9) give training in word recognition based on words which he misses in his oral reading; (10) give practice in blending.

Outline of Treatment

March 1 to March 14. Started Charles reading a primer which was easy for him. He had the experience of success at the completion of his first remedial lesson and received a star on the reading chart. This made him very happy because the other children make quite a fuss over the reading chart. Administered the *Gray Oral Check Test*, Set II, Test 1. Charles took 240 seconds and made 15 errors. This was very poor. If Charles didn't know a word at once, he wouldn't attempt to figure it out. He needed practice in blending. He knew the individual sounds but had difficulty in combining them. He read the test very slowly and laboriously. Started a picture dictionary using sentences. He made up sentences himself whenever possible. He enjoyed doing this. Started using a first grade work-book. As Charles finished a page, it was corrected for him and when he made a perfect score his joy was unbounded. He was often allowed to show a page to the principal.

March 15 to April 4. *Gray Oral Check*, Set II, Test 2, rate 260 seconds, 11 errors. His rate was slower on this test but he made fewer errors. He read the first two paragraphs laboriously but the third was rather smooth, without a single error. Even though this test is not very encouraging, Charles seems to have a new lease on life because he feels his own improvement. He is confident that I am his friend and has unburdened his troubles on two occasions. Unfortunately, Charles was quarantined with measles on March 19th and did not return to school until April 5th. Part of this time was Easter vacation.

April 5, to April 13. *Gray Oral Check*, Set II, Test 3, 199 seconds, 8 errors. Despite the fact that Charles was out of school for a while, he has shown considerable improvement. He has more confidence in his ability to attack new words. He still reads slowly but he comprehends what he reads. He is quite proud of the fact that he can read an entire story silently and then answer the questions in the work-book. The other children are conscious of Charles' improvement and are loud in their praise of his work. One bright little girl has taken him under her wing. She gives him flash card drill every day and assists him in innumerable ways.

April 14 to May 3. Has started reading a book of simple science stories and checks by true-false exercises. Reads to grasp a general impression. Reads to tell what comes next. Has almost finished his work-book and has done a fine job. Has been promised a story book when he finishes. *Gray Oral*, Set II, Test 4, rate 203 seconds, 7 errors. Charles is now reading much more smoothly. He now attempts to sound out words and most of the time is successful. I am not worried about his lack of speed because I think this will come shortly.

May 4 to May 25. Charles has finished his work-book and is continuing with the science stories and a first reader. *Gray Oral*, Set II, Test 5, 147 seconds, 6 errors. Charles has shown decided improvement on this last test in Set II. His errors are down to average for the second grade. His rate is still slow. He seems to group his words better and in general has a much better attack.

Evaluation of Results

Charles was given remedial attention individually for a half hour a day, five days a week, for seven weeks. The test results follow:

	February		May	
	Reading Age	Reading Grade	Reading Age	Reading Grade
Gates Primary	Form 1		Form 2	
Type 1	7-6	2.2	8-1	2.6
Type 2	7-7	2.3	8-7	3.1
Type 3	7-4	2.0	7-8	2.7
New Stanford	Form X		Form Y	
Vocabulary	below norms		8-5	3.0
Paragraph Meaning	below norms		8-4	2.9
Total	below norms		8-4	2.9

Gray Oral Check Tests, Set II (norms for middle of second grade are 112 seconds and 6 errors)

March 1	240 sec.	15 errors
March 15	260	11
April 6	199	8
April 23	203	7
May 13	147	6

Charles has made decided progress, according to the re-testing program. He has gained more than a term in silent reading, and nearly a full year in oral reading. He has quite a large vocabulary of sight words now. He also is able to attack most new words successfully. This makes all types of reading easier and contributes to keener comprehension than he was capable of previously. He is now able to do the work of the grade, and will be promoted.

The remedial work was really therapeutic emotionally in so far as it replaced failure with success and stimulated a genuine striving for a goal which could be achieved. Charles' emotional reaction toward reading has changed from dislike to enjoyment. He shows pride in his accomplishment and perseverance in attack on hard words. From a shy, embarrassed child, he has changed to a competent, free child who takes great satisfaction in his work.

This report has been reproduced with minor editorial changes from a report submitted by Charles' regular second grade teacher as part of her work in a course on remedial reading. It is one of many case reports by the writer's students which demonstrate that teachers with no previous experience in remedial work can do competent work when they have mastered the underlying principles of diagnosis and remedial teaching. Some minor comments are in order. There is no discussion in the report of the significance of the child's intelligence test scores, which indicated dull normal intelligence and reading ability almost up to intelligence level. As the child had severe language and environmental handicaps, not much weight was given to the intelligence results. A re-test of intelligence at the conclusion of the remedial work would have been desirable. It would have been an improvement to include a discussion of the oral reading results in the section of the report on diagnosis, instead of leaving it entirely in the outline of treatment. On the whole, however, the work done by this teacher deserves to be considered well done.

Case Study of a Fifth Grade Pupil¹

Name: Jesse

Age: 10 years 4 months

Grade: 5B, slow class

Intelligence: Kuhlmann-Anderson Grade IV, M.A. 9-2, I.Q. 89. On the five sub-tests requiring reading, M.A. was 8-5, I.Q. 81; on the five non-reading sub-tests, M.A. was 9-6, I.Q. 92.

New Stanford Reading Test, Form Y

Vocabulary: grade score of 3.9

Paragraph Meaning: grade score of 3.9

Gray Oral Check Test, Set II, Test 1: 8 errors in 132 seconds.
Norm for middle of second grade is 6 errors in 112 seconds.

¹ This report was written by a special remedial teacher with considerable experience.

Social History. Jesse's attitude toward school is really surprising. He likes school despite his poor achievement in reading. His wholesome attitude toward school can be explained by the following:

1. He has always been in a slow class and has not had to repeat grades.
2. His arithmetic is good and his teachers always praised him for his merit in this subject. He is not really superior in arithmetic, but stands out in comparison to his dull classmates. At any rate, he has received recognition for good work.
3. He is well behaved, cooperative, and has a pleasing personality.
4. His school companions like him and he gets along well with them.

Jesse is inclined to be somewhat reserved. This may be due to his inferior language development. When this is remedied he will probably come out of his shell and be more talkative.

He has no serious speech defects. His enunciation and pronunciation are quite slovenly—a product of his neighborhood environment, where pride is taken in saying “dat” and “dose,” and of his home, where English is hardly ever spoken.

Physical Status. Jesse seems to be a fine, healthy physical specimen. His eyes are both 20/20 according to the Snellen test. His tonsils have been removed and he has no nasal obstructions. There are no defects of heart or lungs, and his hearing is normal according to an audiometer test made a year ago.

Emotional Status. Jesse has a marked dislike for reading, and has no confidence in his reading ability. He hates to be called upon to read. Otherwise his emotional adjustment seems normal and his interests are those of an average boy.

Environment. The neighborhood in which Jesse was born and still lives is a very old residential one which today is aptly described as pre-delinquent. There are no recreational or community centers accessible. The play center is a vacant lot adjacent to a freight railroad.

Jesse is the youngest of four children. He has a brother and two sisters. The oldest girl goes to college. The next

oldest is a girl who works in a factory. The brother, who is sixteen, graduated from elementary school last year and is unemployed. The family lives in a cheap four room flat. The father is a brick-layer who has never been more than a marginal provider. The mother is an industrious, capable household manager who spends all of her time in the home. She has neither the time nor the inclination for other pursuits. Both of the parents were born in Italy and neither had any formal education. Italian is spoken exclusively in the home. The effect of the foreign language is shown in Jesse's habit of omitting the final *s*, his inability to pronounce a proper *th* or *j* sound, and his lack of understanding of commonplace words such as scorch, copper, outward, etc.

School History. Jesse started school in the 1A grade and has progressed normally to his present grade, the 5B. He has always been in a slow class of dull children. His record card denotes deficiency in reading throughout the grades. He was absent for 23 days in 1A, and was placed on the suspense register in 2B and 4B, attending only 18 days in grade 2B and 58 days in 4B. These absences were probably significant in the causation of his reading difficulties, especially those in the first and second grades.

Upon inquiring about the type of instruction Jesse has received I found that:

1. The "whole method" was used exclusively by his first grade teachers.
2. Reading "aloud" rather than specific, motivated, and well prepared oral reading assignments was the general procedure.
3. Silent reading exercises were usually made up by the teacher on the spur of the moment rather than thought out to meet the individual's needs.
4. No individualized approach was ever attempted.
5. No standardized tests had ever been given and no attempt at diagnosis had been made.
6. The materials of instruction used had always been too difficult for satisfactory use by retarded pupils.

Diagnosis. It may be concluded that Jesse has a definite reading deficiency. An analysis of his reading difficulties reveals the following:

1. His ability in oral reading is at the 2A level. He shows

poor phonetic ability. He does not know the sounds of the vowels, *e, i, o*, and *u* or of the consonants *m, n, g, x*, and *z*, although he can name all the letters. He lacks ability at blending and combining phonograms, at times making wild guesses when he is confronted with unfamiliar words and sometimes just waiting to be told. His errors include non-recognitions, repetitions, mis-pronunciations and substitutions. He makes mistakes on word beginnings as well as on endings. He does not show any significant reversal tendencies. He reveals both right hand and right eye dominance.

2. His ability in silent reading comprehension is at the ₃B level.
3. Summarizing his reading habits, the following specific weaknesses seem to stand out: (a) lack of phonetic ability and blending technique; (b) regressions and repetitions, probably due to poor word recognition; (c) slow rate, due to weakness in word recognition and to poor comprehension as well; (d) faulty phrasing—he calls words instead of reading in thought units; (e) lack of comprehension, due to all the other enumerated faults.

Treatment. A variety of procedures have been used with Jesse. They include:

1. Use of an easy third grade reader and an accompanying work-book. I check his work-book exercises and he goes back and finds the reason for his mistakes. No period of instruction goes by in which he doesn't get some form of approval that he really deserves.
2. We have a room library with many easy books. He enjoys reading them and browsing through the pictures. He answers questions on what he reads, or draws a picture on the blackboard, or tells about a character he liked, etc. He has a chart with colored paper showing the books he has read—up to date there are three.
3. Before starting a story in the reader he is given specific training on the new words in the story. He then reads the story and answers the questions in the work-book.
4. He is making a picture dictionary which is very attractively bound. I give him old magazines and he cuts out

and pastes the pictures. He has brought in some pictures of his own accord.

5. A number of different procedures are used to build up his ability at word recognition and analysis.
 - a. About fifteen minutes of each period are devoted to the study of phonetic elements. He has been drilled on the letter sounds he did not know, on long and short vowels, and on phonograms. Terminal phonograms like *ly*, *est*, and *ed* have been stressed.
 - b. He is given practice in blending. This is restricted to words he already knows until he becomes more proficient at it.
 - c. We make use of a "lucky wheel" with phonograms on it.²
 - d. We use exercises of the multiple-choice kind in which the alternatives are similar in shape and size.
 - e. I encourage him to try to make use of the context first when he comes to an unknown word, and to attack it phonetically when the context approach does not work.
 - f. He practices finding small words within larger words.
 - g. Individual flash cards are made of words that he has missed.
6. For his lip movements and vocalization in silent reading I explained why these were bad and had him watch me and try to imitate me. I encouraged him to try to read as big people do.
7. He has been given some practice in skimming silently to find the answers to specific questions.
8. Once a week I give him a rate test on silent reading material from a work-book.
9. Records are kept of his progress in all phases of the remedial program.

Results. The results as indicated by standardized tests after three months of remedial work in a special group of five

² Some of the remedial devices mentioned in these case reports may not be intelligible to a reader unacquainted with remedial techniques. It may therefore be advisable to look over these case studies again after reading Chapters IX and X.

pupils, which met daily for a 45 minute period for three months, are as follows :

New Stanford, Forms Y and V	Initial Test		Final Test		Gain	
	R.A.	R.G.	R.A.	R.G.	R.A.	R.G.
Vocabulary	9.9	3.9	9.11	4.1	0.2	0.2
Paragraph Meaning	9.9	3.9	10.4	4.4	0.7	0.5
Total Score	9.9	3.9	10.1.5	4.25	0.4.5	0.35

Gray Oral Check Test, Set II

Initial Test (Test 1): 8 errors in 132 seconds

Final Test (Test 4): 3 errors in 104 seconds

Norms for middle of 3rd grade are 3 errors and 63 seconds.

In silent reading Jesse has improved 2 months in vocabulary and a trifle more than half a year in paragraph comprehension, averaging less than a term's gain. This was rather disappointing. In oral reading he made greater improvement, as his initial performance was at the 2A level for both rate and errors, while on the final test he was up to the 3B level for accuracy although still slow.

In view of the thorough diagnosis shown in the above case study and the apparently carefully planned remedial work, the results may seem to be rather meager. On more careful consideration, however, one must conclude that results much better than these should not have been expected. The M.A. of 9.2 obtained on the *Kuhlmann-Anderson* test at the beginning of the diagnostic work was seven months below Jesse's level in reading comprehension at that time. If the M.A. based entirely on non-reading tests is used, it was still three months below his initial grade level on the *New Stanford*. Under those circumstances a gain of four months in reading comprehension is satisfactory. There was room for a much greater gain in oral reading because his oral performance was so much poorer than his silent reading. The same amount of careful work devoted to a brighter child will normally give more satisfying gains.

Case Study of a Junior High School Pupil

The following report was written by a remedial teacher in a junior high school. The pupil was one of a group of five who met with the teacher three times a week for periods of forty minutes.

Coming largely in contact with children whose reading deficiencies were basically due to their low intelligence, I became interested in the case of Marian, a seventh grade pupil. She seemed an alert, intelligent child with a pleasant, likable disposition. Her parents were both born in America; her father is employed in an office. Marian had many friends and liked dancing, sewing, and playing out of doors. Although she seemed so normal in every other respect, mere observation of her reading revealed her to be retarded in it. Further investigation substantiated these conclusions.

School History. Her statistical background, at the time this study was undertaken, consisted of the following: (1) chronological age, 12 years and 7 months; (2) grade position, second month of the seventh grade; (3) I.Q. 100 (National Intelligence Test); (4) mental grade status, 6.8. The record card disclosed that she had been marked deficient in reading ever since the 2A and had repeated grade 3B, marked D in reading. Nevertheless she received a B+ average in grade 6B, having marks of 100 in geography, 95 in history, and 85 in arithmetic. This seemed to indicate higher intelligence than the test results showed.

A factor of possible significance was her temporary discharge because of illness while in grade 2A. On her return the following term she was put in grade 2B within two weeks. Altogether she spent only about seven weeks in the 2A, during which there was a long break.

Marian professed a dislike for reading books herself; she read them only when she had to, but liked to have stories read to her.

Testing Program. On the *Gray Oral Paragraphs* she obtained a grade score of 5.1. The results on Test 1, Set IV of the *Gray Oral Check Tests* were 15 errors in 190 seconds (norms for the sixth grade are 6 errors and 69 seconds). On

the *Gates Graded Word Pronunciation Test* she made a score of 81, average for grade 4.4. These tests showed the extent of her oral reading deficiency. Her grade scores on the *New Stanford Reading Test* were 4.6 for Vocabulary and 4.7 for Paragraph Meaning, indicating a retardation of two and a half years below her grade position, and slightly poorer performance in silent than in oral reading. Her normal rate of reading determined by timing two 600 word selections was 135 words per minute, which is very slow for her age.

Diagnosis. Upon analysis of her test results and observation of her performance during the tests I concluded that material of fifth grade difficulty was hard for her because of lack of ability in recognition of new words, due to limited method of word analysis. When seeing a new word, she always attempted to sound out the letters and became confused after the first few sounds. This was probably due to lack of sufficient training in the 2A and subsequently, and possibly because of being instructed to sound out words slowly to overcome a slight speech defect.

She read easy material fluently and with expression. Because of a good memory she could pronounce a number of difficult words which had been told to her, but would miss on simpler words of fifth or sixth grade level. This lack of ability in word analysis and recognition led to her finding reading difficult and laborious, retarded her rate, and caused her to dislike reading. As a consequence of her limited practice in reading, her comprehension of printed material was poor.

Treatment. Because of her retentiveness and ability to "get by" she had received no remedial or special instruction previous to this term. My main objectives in beginning remedial work were to: (1) acquaint her with and give practice in a variety of methods of word analysis and recognition; (2) increase her speed in reading; (3) improve comprehension; and (4) stimulate an interest in reading.

Marian was a willing and interested pupil and that alleviated the problem of motivation. Work was largely done with work-book material and with specially prepared materials. These consisted of lessons (mostly in geography and history) built around the seventh grade curriculum. Each

lesson contained a vocabulary test on the new words, a reading selection, and a comprehension test. They were presented in various ways, orally and silently, particular attention being given to the new words—pointing out words within words, noting phonograms, comparing similar words, making lists of words with similar sounds, making use of word-keys such as prefixes and suffixes, etc. To build up vocabulary a note-book was kept in which were recorded three words from each lesson, with their meanings and a sentence for each.

The vocabulary and word drills were followed by silent reading of the lesson, usually a typewritten page in length. Rate of reading was recorded once a week. A short comprehension test followed, using multiple-choice or true-false questions. Bar graphs were kept recording graphically the progress in comprehension and rate. Oral work consisted of reading parts containing the answers to thought questions or acting out parts in which dialogue appeared. An exercise from the *McCall-Crabbs Test Lessons*, Book III, was given each period to afford further practice in reading quickly and in noting details.

After the first three weeks, Marian asked for some suggestions about books to read as she was going to join the public library. She was given a list of books on the fifth grade level, such as *Heidi*, the *Dutch Twins*, *Dr. Doolittle*, etc. This request was partly inspired by a colorful "Reading for Fun" chart on which each pupil who read a book pasted a colored slip of paper containing the name and a one sentence comment about the book. A few weeks later Marian had four slips in her column.

Results. Progress as shown by re-testing was as follows:

1. Daily lessons (weekly tests):

Date	Rate	Comprehension
March 15	135	70%
March 23	149	70
April 7	160	85
April 14	160	90
May 2	185	85
May 12	191	100
May 21	190	100

2. McCall-Crabbs, Book III.
 Average of lessons 1-10 : grade score of 5.3
 Average of lessons 11-20 : grade score of 6.4
3. New Stanford. Form Y, Feb. 14 Form V, May 20
 Vocabulary 4.7 5.9
 Par. Meaning 4.6 6.3
4. Gray Oral Reading Check Tests (given every other week):
 Set IV, Test 1 : 15 errors, 190 seconds
 Test 2 : 14 errors, 183 seconds
 Test 3 : 9 errors, 110 seconds
 Test 4 : 12 errors, 108 seconds
 Test 5 : 9 errors, 89 seconds

The results indicate a gain of more than a year in silent reading and a little less than a year in oral reading, as a result of 25 periods of remedial coaching spread over a period of three months. Continuance of the remedial work should soon bring Marian up to a reading level consistent with her grade position in school.

This case record differs from the preceding two in several respects. The form in which it is written up is less formal and systematic and more conversational in tone, a difference which is not necessarily to the advantage of the more formal styles. The diagnosis of reading habits and abilities is quite satisfactory, but there is a serious omission in the failure to take into account possible sensory or other physical defects. The remedial procedures seem to have been adequate, although greater stress on silent reading for pleasure without detailed check-up would probably have been an improvement. The good results obtained may have been due as much to the large discrepancy between the pupil's reading ability and her intelligence (which was not adequately measured) as to the specific remedial measures that were employed.

SUGGESTED ADDITIONAL READING

- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Ch. II (The Macmillan Company, New York, 1935)
- Emmett A. Betts, *The Prevention and Correction of Reading Difficulties*, Ch. XIV (Row, Peterson and Company, Evanston, 1936)
- Marion Monroe and Bertie Backus, *Remedial Reading*, pp. 34-46 and Ch. IV (Houghton Mifflin Company, Boston, 1937)
- James M. McCallister, *Remedial and Corrective Instruction in Reading*, Ch. VI (D. Appleton-Century Company, New York, 1936)
- Harry J. Baker and Bernice Leland, *In Behalf of Non-Readers* (Public School Publishing Co., Bloomington, 1934)

CHAPTER VIII

MATERIALS FOR REMEDIAL READING

Every skilled worker is expected to be familiar with the tools of his trade. The carpenter must know his saws, planes, chisels, and other tools; the surgeon must be thoroughly acquainted with the hundreds of instruments used in his calling. It is only reasonable that the teacher engaged in the delicate work of restoring disabled students to educational health should have a similar knowledge of his tools. When the teacher has decided what phases of reading to emphasize in remedial work, he must then select the materials that he is going to employ. This chapter is intended first of all to present the general principles involved in the selection of reading materials for remedial purposes, and secondly as a source of reference for suggestions about materials that are now available.

I. CHARACTERISTICS OF READING MATERIALS

Difficulty

Many a teacher finds that he has been given books to use as texts and readers which seem to be much too difficult for his pupils. When that happens the teacher must do the best he can with inadequate materials. Such a situation is all too common in public schools, and is probably one of the reasons why normal development of reading skills is not more commonly achieved. The need for adequate reading materials is even more important for a remedial teacher. To handicap him with improperly chosen materials is to saddle him with a burden that he

can carry only by the unnecessary expenditure of a great deal of effort.

In general, retarded readers should be given reading material which is not more difficult than the grade level at which they can read successfully. At the beginning of remedial treatment it is often desirable to give them materials which are one or two grades below their apparent reading level. This insures successful reading from the beginning of the remedial work, and thus tends to stimulate effort. It also gives opportunity for fluent reading and for paying attention to thought getting—something which is overshadowed when much attention has to be devoted to the mastery of new vocabulary.

The fact that a book is labelled a third reader does not indicate its difficulty in any but a very broad sense, since there is a tremendous range in the difficulty of readers intended for the same grade. For instance, one study reports that the number of different words found in primers ranged from 175 to 480; the average repetition of words varied between 9.2 and 31.5; and the per cent of words used fewer than five times was as high as 62 in one book and as low as 10 in another.¹ Similar wide ranges in difficulty have been reported for books at other grade levels.²

The difficulty of a book depends largely on the vocabulary that it contains. A book which uses a small number of words that occur again and again tends to be easy; one which employs a large number of new words, many of which are used only once or twice, tends to be difficult. The sentence-structure and the familiarity or strangeness of the content are also significant factors in difficulty.

Several different methods are employed in estimating

¹ J. A. Hockett and D. P. Neeley, A Comparison of the Vocabularies of Thirty-three Primers, *Elementary School Journal*, vol. 37, 1936, 190-202.

² E. L. Thorndike, Improving the Ability to Read, *Teachers College Record*, vol. 36, 1934, 229-241.

the difficulty of the vocabularies of books. Most of them involve hours of laborious work for each book, and so are feasible only for a research worker who is able to devote the necessary time and effort. Fortunately there are many studies in print in which one can look up the difficulty of specific books. References to them will be found in the next section.

A classroom teacher who has had experience in several grades can usually form a rough estimate of the difficulty of a book by reading it through and studying a few of the pages carefully. In evaluating basal readers he will find the page-by-page list of new words given in many recently published books to be helpful. The teacher should, however, check his personal impression by consulting published studies of the difficulty of books whenever such lists are available.

In choosing a book for an individual child the teacher can estimate its difficulty by having the child read a few sample selections from the book and tell her which words he does not know. A book intended to provide practice in fluent reading of easy material should not have more than two or three words in a hundred running words that are unknown to the child. Work-type materials may be satisfactory if not more than five out of one hundred running words are unfamiliar.

Research workers usually start their analysis of the vocabulary of a book by making a list of all the words used in it and the number of times each word is used. The word count can then be analyzed in a variety of ways. Commonly two or more of the following types of information are published :

1. The total number of words in the book. This is simply a measure of the length of the book.
2. The total number of different words used. The larger

the number of different words, the more difficult the book tends to be.

3. The degree of repetition employed. The average repetition per word is obtained by dividing the total number of words by the number of different words. The higher the average repetition, the easier the book is.
4. The per cent of the words in a book that are used only a small number of times. The lower this per cent is, the easier the book.
5. The proportion of the words in a book that have been used in books previously read. This kind of information is extremely valuable for a teacher who wants to select a list of books to be read in sequence.
6. The proportion of the vocabulary of a book that is included in standard lists of common words. In general, the higher this proportion is, the more useful the book will be as a preparation for later reading.

The sentence structure of a book also affects its difficulty. For the beginner, sentences should be short and simple in structure, and inversions of the normal order of words should be avoided. Long and involved sentences tend to make reading difficult even when the vocabulary is easy.

If a book deals with subject-matter and ideas that are already somewhat familiar to the reader, he will find it easier to comprehend than one which deals with new and strange ideas. The wide variation in the backgrounds of school children should be taken into consideration in estimating the difficulty of books for them. Country children, for instance, find books dealing with farm life easier to read than city children do. When a book deals with unfamiliar topics it is necessary for the teacher to spend time in preparing the children for the concepts that they will meet in their reading.

Books written as texts usually are more difficult than general readers intended for the same grade. They con-

tain large proportions of technical vocabulary, and are usually crammed full of facts and ideas which require much more careful and analytical study than story-type material does.

A formula for estimating the grade level of a book without making a complete word count has been devised by Washburne and Morphett.³ It is based on a sample word count of 1000 words from different parts of the book, and involves a combination of the average amount of repetition, the proportion of words that are above the primary level, and the proportion of simple sentences. The probable error of the formula is about half a grade. Use of the formula is probably too involved for the classroom teacher, but may prove useful to school systems or committees which want to make independent studies of the difficulty of books.

A more elaborate scheme for rating books has been worked out by Lewerenz.⁴ It is based on a sample of 1000 words from the book, and includes measures of vocabulary difficulty (proportion of special or scientific words), polysyllabic words (proportion of words of more than one syllable), vocabulary diversity (total number of different words in the sample), vocabulary mass (proportion of words outside of the most common 500 in the Thorndike list) and interest rating (based on the proportion of colorful descriptive adjectives and adverbs). Grade scores are assigned to the book for each of the first four measures. The probable errors of measurement are about one-quarter of a grade for the first three measures and half a grade for vocabulary mass.

The importance of the difficulty of reading material has been increasingly recognized in recent years, and as

³ C. Washburne and C. V. Morphett, *Grade Placement of Children's Books*, *Elementary School Journal*, vol. 38, 1938, 355-364.

⁴ A. S. Lewerenz, *The Vocabulary Grade Placement Formula*, *Journal of Experimental Education*, vol. 4, 1935, 236.

a result books written for the elementary school, and especially for the primary grades, are constructed with much more care about vocabulary than formerly. This is brought out vividly in a study in which the vocabularies of first readers published between 1930 and 1935 are compared with those of first readers published between 1920 and 1929.⁵ While the length of the books remained practically the same, the newer books had 16 per cent fewer words and 21 per cent greater average repetition, and the proportion of words used fewer than six times in a book decreased by 16 per cent. This tendency to employ restricted and carefully graded vocabularies is a good trend. Since fewer words can be learned from one book, one result has been to encourage teaching methods which provide for wide and varied reading.

Interest Value

Strong efforts have been made to include in readers the kinds of material that appeal to the natural interests of the children who are expected to use them. The changing interests of growing children have been explored by many research studies,⁶ and those who write books for children have made use of these studies in deciding what kinds of materials to include in books for the different grades. The authors have on the whole been quite successful in selecting materials which are interesting to the normal child.

It is often hard to select appropriate reading material for older children who are retarded in reading. Most of the books that deal with topics that interest these chil-

⁵ J. A. Hockett and D. P. Neeley, *The Vocabularies of Twenty-eight First Readers*, *Elementary School Journal*, vol. 37, 1937, 344-352.

⁶ K. C. Friedman and C. L. Nemzek, *A Survey of Reading Interest Studies*, *Education*, vol. 57, 1936, 51-56.

M. Lazar, *Reading Interests, Activities and Opportunities of Bright, Average and Dull Children*. Contributions to Education, No. 707 (Bureau of Publications, Teachers College, Columbia University, New York, 1937).

dren are too advanced for them. Many of the books that are easy enough seem babyish to them because they are intended for younger children. Thorndike, in surveying the books available for the intermediate grades, came to the following conclusion: "There simply are not enough books satisfactory in both content and vocabulary to provide wide reading for pleasure by the lower half of pupils in grades 4-6."⁷ This problem is of serious concern to the teacher of remedial reading.

If a child's retardation in reading is not very great, the chances are that he will accept readers intended for normal children one or two grades below him without much protest. This is especially likely if the book is not openly called a "second reader" or "fifth reader," but has an individual title like a story book. If there is a discrepancy of several grades between the age of a child and his reading level, it is quite difficult to find suitable material. For this reason it is often desirable or even necessary to write special material for retarded readers. Suggestions for writing such material will be given later.

For children whose reading is above the primary level, the use of basal readers is not really necessary. Story books, informational books, work-books, magazines and newspapers can be employed to give variety and richness to a remedial program. The carefully graded vocabularies of recent primary grade sets of readers, however, make them very desirable materials for the remedial instruction of children whose reading ability is below the fourth grade. They need an abundance of easy material for practice in word-recognition, fluency and comprehension, and it is difficult or impossible to supply enough specially-prepared material for them. If such a child balks at reading a primer or first or second reader, his co-

⁷ E. L. Thorndike, *Improving the Ability to Read*, *Teachers College Record*, vol. 36, 1934, 229-241.

operation can usually be gained by a proper approach. He can be told that the book may be somewhat uninteresting for him because it is intended for younger children, but that he needs practice on easy reading and that this practice will make it possible to read and enjoy more suitable books. Another procedure that can be employed is to give the child opportunities to read stories to younger children.

With remedial cases even more than with normal children it is advisable to select reading that has a natural appeal to the interests of a child. One of the best ways to build up a desire to read is to get a child to realize the enjoyment that can be gained in reading interesting books and stories. What is appealing to one child may, however, be quite unattractive to another. It is necessary to find out from each child what things interest him and what he would like to read about. When working with large classes of children questionnaire forms and check lists such as that devised by Witty⁸ may be used to good advantage. Compositions on topics such as "What I like to read" are also useful. When individual work is done with children, satisfactory information about their likes and dislikes can usually be gained in conversation. When the teacher has discovered the child's interests it is up to him to find reading material which appeals to him and is also of suitable difficulty.

Mechanical Features

The time-established belief that little children need reading material printed in very large type, middle-sized children need middle-sized type, and only older children and adults should read small type has been challenged. Uhl has presented evidence that the clearness of type,

⁸ P. Witty and D. Kopel, The Use of Book-Lists and Tests in Guiding Children's Reading, *Elementary English Review*, vol. 15, 1938, 167-170.

which depends largely on the firmness of the shading and the amount of white space within and between the letters, is more important for legibility than the size of the type.⁹ He argues that a good, clear 12-point type printed in short lines and with adequate spacing between the lines is quite satisfactory even for first-grade children. According to Alderman,¹⁰ first and second grade children read from small type faster than from large type and with just as good accuracy. For retarded readers the same criterion of clearness rather than size seems also to be desirable. When defective vision is involved, however, there seems to be good reason for employing type of large size such as that used in sight-saving classes.

The authors of many recent sets of readers seem to have devoted at least as much attention to their illustrations as to their content. There is no question but that plentiful and attractive illustrations add to the interest value of a book for children, and that they often aid in understanding the story. However, the informative value of illustrations has probably been greatly over-estimated.¹¹ The present information about illustrations in children's books has been ably summarized by Goodykoontz¹² as follows:

1. Children like books that have at least one-quarter picture space.
2. Children like full page or large pictures.
3. Children prefer strong colors.
4. Children like bold central groups with few but striking details.

⁹ W. L. Uhl, *The Materials of Reading*, Chapter III in the 36th Yearbook of the National Society for the Study of Education, Part I, 1937.

¹⁰ E. Alderman, *The Effect of Size of Type on Speed of Reading and the Determination of Various Factors That May Influence the Results*, *Pittsburgh Schools*, vol. 13, 1938, No. 2.

¹¹ W. A. Miller, *Reading With and Without Pictures*, *Elementary School Journal*, vol. 38, 1938, 676-682.

¹² B. Goodykoontz, *The Relation of Pictures to Reading Comprehension*, *Elementary English Review*, vol. 13, 1936, 125-128.

5. Realistic pictures are preferred to conventionalized pictures.
6. Action, humor and story are preferred picture types.
7. Young children like a broader range of picture subject-matter than they usually receive.
8. Young children do not care especially for pictures of child activities.
9. Older children like pictures related to in-school and informational interests.

There has been an increasing tendency in recent years to eliminate the practice of labelling a book as a "second reader" or "fourth grade reader" and to substitute titles similar to those of story books. The grade level of the book may be indicated inconspicuously on the title page by the number of stars or crescents placed in one corner, or may not be indicated in the book at all. This tendency is a valuable one for the remedial teacher, as it tends to reduce resentment against reading books which are labelled as intended for a lower grade. If other things are equal, a remedial teacher may reasonably prefer a book which is not obviously labelled to one that is.

II. THE SELECTION OF REMEDIAL MATERIALS

There are many different kinds of materials that can be used in teaching retarded readers. Among them are readers, supplementary books, pamphlets, magazines, newspapers, work-books, dictionaries, and practice exercises and drill materials. Besides the published materials there is much that teachers can make for their own use. The rest of this chapter will be devoted to a consideration of each of these types of remedial materials.

Basal Readers

It is very difficult to conduct remedial reading for pupils whose reading level is below the fourth grade without making use of basal readers, even when specially con-

structed material is employed. Retarded readers need to read widely in simple material that has carefully controlled vocabulary, and this can be provided most easily by means of basal readers. It has already been pointed out that objections to the content of these books by older children can usually be overcome by a proper presentation of the need for using them.

Every year sees the appearance of new sets of readers. Between 1930 and 1939, at least twenty-three sets of readers appeared on the market. Most of the new readers have been carefully written with the questions of difficulty and the introduction of new words given considerable attention. As a group the new readers are much easier and have much more carefully controlled vocabularies than those written ten or more years ago, and most of them can be successfully used by remedial teachers. Some of them are, however, much easier than others, and it is therefore worthwhile to consider the differences that exist among them.

Several good analyses of the difficulty of pre-primers, primers, and first readers have been published. The most complete of these have been the ones by Rudisill¹³ and Hockett.¹⁴ A comprehensive study of the difficulty of second grade readers has also been made by Hockett.¹⁵ The only impartial sources of information above the second grade level that are known to the writer are the Los Angeles reports¹⁶ using the Lewerenz formula, which

¹³ M. Rudisill, Selection of Pre-primers and Primers — A Vocabulary Analysis, *Elementary School Journal*, vol. 38, 1938, 683-693 and 767-775.

¹⁴ J. A. Hockett, *The Vocabularies and Content of Elementary School Readers*, Department of Education Bulletin No. 3 (State Department of Education, Sacramento, Calif., 1938). See also articles by Hockett in the *Elementary School Journal*: vol. 37, 1936, pp. 175-179 and 344-352; vol. 38, pp. 683-693 and 767-775; vol. 39, pp. 112-115.

¹⁵ J. A. Hockett, A Comparative Analysis of the Vocabularies of Twenty-Nine Second Readers, *Journal of Educational Research*, vol. 31, 1938, 665-671.

¹⁶ *Books Evaluated by Means of the Vocabulary Grade Placement Formula*, Revised to March 1937 (Los Angeles City School District). *Textbooks and Instructional Materials Evaluated by Means of the Lewerenz Grade Place-*

contain ratings on textbooks in other subjects and on supplementary reading materials as well as data on readers. Those interested in such ratings should consult the original studies.

There are several points that should be kept in mind in deciding on a choice of a reader. The research studies take no account of the effect on the difficulty of a book of using an accompanying work-book. One first reader is among the most difficult when used by itself, but when used in connection with its work-book the combination ranks among the easiest. Another point to consider is that two books may both be easy but may employ quite different vocabularies, so that one of them when used after the other might be difficult for the child. Data on the degree to which the vocabularies of different pre-primers and primers overlap are included in the studies by Rudisill and Hockett mentioned above; these data should be quite useful in determining the sequence in which different readers should be read. Similar data would be useful above the primer level but are not yet available. The importance of this matter of overlapping is confirmed in a study by Betts,¹⁷ who found that only 34 words were common to all of the 13 primers and only 116 words were common to all of the 13 first readers that he studied. The choice of reading material should be based on considerations of content, style, and interest appeal, as well as on difficulty.

A type of information that should prove useful to many teachers has been compiled by Hockett.¹⁸ It consists of a classified index of the subject-matter found in readers, with page references to the readers in which material

ment Formulas, 1938 (Los Angeles County Superintendent of Schools, Los Angeles).

¹⁷ E. A. Betts, *A Study of the Vocabularies of First Grade Basal Readers*, *Elementary English Review*, 1939, 16, 65-70.

¹⁸ J. A. Hockett, *The Vocabularies and Content of Elementary School Readers*.

on each topic may be found. Separate indexes are included for primers and for each grade from one through six. For instance, if a child is reading at the fourth grade level and is interested in airplanes, automobiles and boats, the fourth grade index shows the pages on which information about airplanes can be found in seven readers, automobiles in five readers, and boats in five readers. These indexes should be quite valuable as aids in selecting material which is both of appropriate difficulty and suitable content.

Many school principals have allowed each teacher to select basal readers for his grade without regard to the books used in preceding and following grades. While this practice may seem commendable from the standpoint of democracy or encouraging initiative in the teacher, it leads to nothing but confusion for the pupils. In spite of the use of standard word lists in writing school books, there still exist great differences in the particular words used in different sets of readers. If a child is confronted with the first reader of Series A, followed by the second reader of Series B and the third reader of Series C, he may find a very large proportion of unfamiliar words in each book. This difficulty is not apt to arise if children read several books at about the same level of difficulty before proceeding to the next level. If only one basal reader is used in each grade, however, some one series should be followed in progressive order at least through the third grade. If a principal wants to leave the choice of books to the teachers, the best plan is to appoint a committee and follow its recommendations.

Books Written Especially for Retarded Readers

One of the most useful sets for remedial reading is *The Children's Bookshelf*,¹⁹ which consists of two pre-primers,

¹⁹ Published by Ginn and Co., Boston.

a primer, and eight readers corresponding to the eight grades. Vocabulary and style have been kept simple throughout the series, and each book is among the easiest available for its grade. In selecting the stories an attempt was made to include material that would be interesting to retarded children as well as to normal children; the fourth and fifth readers, for instance, are interesting to slow readers in junior high school. All of the stories are new and have not appeared in any other readers—a big advantage with remedial cases.

A good beginning has been made in the writing of books intended primarily for use by retarded readers in the upper grades and secondary school. Two series of simplified classics are worthy of attention. One of them is a series of children's classics, including such titles as *Andersen's Fairy Tales*, *Black Beauty*, and *Heidi*, edited by Thorndike and re-written with a simple vocabulary suitable for the fourth grade level.²⁰ The other is a series of simplified and abridged novels by such authors as Scott, Dumas, Kingsley, and Haggard, edited by West.²¹ Books written for retarded readers at the secondary school level and dealing with such topics as adventure, sport, popular science, and biography are also appearing in increasing numbers.²²

²⁰ The Thorndike Library (D. Appleton-Century Co., N. Y.).

²¹ M. West, editor, *Simplified and Abridged Classics* (Longmans, Green and Co., N. Y.).

²² Some books of this nature that are too recent to be included in the book lists described on p. 217 are:

C. L. Persing and others, *The Discovery Series: Adventure Bound; New Horizons; Champions; Conquests of Science* (Harcourt, Brace and Co., N. Y., 1935).

H. HENNING, I. Richards, and A. Salisbury, *Desert Treasure* (Harr Wagner Publishing Co., San Francisco, 1939).

G. Moderow, M. Y. Sandrus, J. Mitchell, and E. C. Noyes, *Six Great Stories* (Scott, Foresman and Co., Chicago, 1937).

L. J. Persky, *Adventures in Sport* (Ginn and Co., Boston, 1937).

E. D. Starbuck and Staff, *Living Through Biography: I. The High Trail, II. Actions Speak, III. Real Persons* (World Book Co., Yonkers, 1936).

W. W. Theisen and S. A. Leonard, *Real Life Stories: Tales of Courage*,

A number of books intended for use as textbooks in junior and senior high school remedial reading classes have also appeared.²³ They include descriptions of how to become a better reader, interesting selections to be read, and a variety of tests and exercises based on the reading selections. The level at which these books are written makes them more suitable for pupils retarded one or two years than for the more extreme cases of reading disability.

There is still a need for more books that are definitely intended to appeal to retarded readers, especially those in the intermediate grades. Until this deficiency is overcome remedial teachers will have to rely largely on books and materials intended for normal children.

References on Supplementary Reading Books

Few teachers have a sufficiently wide acquaintance with children's literature to be able to think of books and selections that are suitable for a particular child by relying on their memories. Fortunately there are several good reference works in which one can find books briefly described and classified under headings with regard to both difficulty and interest appeal. Among these the following are outstanding :

S. Andrews, editor, *The Children's Catalogue*, 5th edition, revised (H. W. Wilson Company, New York, 1936). Gives

Open Spaces, Heroic Deeds, Real Adventures (The Macmillan Co., N. Y., 1935-1937).

J. Cottler and H. Jaffe, *Heroes of Science; Map Makers; Champions of Democracy* (Little, Brown and Co., Boston, 1937-1938).

²³ Among these textbooks the following deserve mention :

P. E. Knight and A. E. Traxler, *Read and Comprehend* (Little, Brown and Co., Boston, 1937).

C. Hovious, *Following Printed Trails* (D. C. Heath and Co., N. Y., 1935).

C. Hovious, *Finding the Printways* (D. C. Heath and Co., N. Y., 1938).

A. M. Broening, F. H. Law, M. S. Wilkinson, and C. L. Ziegler, *Reading for Skill* (Noble and Noble, Publishers, Inc., N. Y., 1936).

H. Roberts and H. Rand, *Let's Read* (Henry Holt and Co., N. Y., 1937).

M. B. Cage, *Reading in High Gear* (Harper and Brothers, N. Y., 1938).

recommended books from the first through the ninth grade, classified by author, title, subject, and difficulty; also contains under subject headings references to chapters in books; brought up to date annually by means of supplements.

M. S. Wilkinson, V. Weedon, and C. Washburne, *The Right Book for the Right Child*, revised edition (John Day Company, New York, 1936). Discusses the principles of selecting books and lists and classifies about 2500 books according to author, title, grade level and interest.

N. Beust, compiler, *Graded List of Books for Children* (American Library Association, 1936). Joint Committee of the National Education Association and the National Council of Teachers of English. Lists and classifies about 1500 books according to author, title, grade level and interest.

Z. Brown, editor, *Standard Catalogue for High School Libraries*, second edition (H. W. Wilson Company, New York, 1932). Lists about 3000 books; is organized like the *Children's Catalogue*. Kept up to date by yearly supplements.

S. S. Center and M. J. Herzberg, *Leisure Reading for Grades Seven, Eight and Nine* (National Council of Teachers of English, Chicago, 1932). An illustrated list that may be used by pupils; books are classified by author, title, grade and type of content.

One Thousand Books for the Senior High School Library (American Library Association, 1935). Suggestions for a minimum high school library, classified by author, title, and subject-matter.

The above book lists are not intended specifically for use in connection with remedial reading, although the remedial teacher will find them useful. There are a few studies in which one can find lists of books specifically recommended for retarded readers, such as:

J. A. Hockett, Reading Interests of Z-Section Pupils, *Elementary School Journal*, vol. 36, 1935, 26-34. Lists 68 books popular with retarded readers in grades 4, 5, and 6.

Section for Work with Boys and Girls, California Library Association, Choosing the Right Book: A List for Teachers and Librarians to Use with Retarded Readers, *Elementary English Review*, vol. 16, 1939, 21-23. Contains separate lists

of books suitable in difficulty and interest for retarded readers in the intermediate grades, upper elementary grades, and junior high school, and lists series of books that appeal to retarded readers.

Books Evaluated by Means of the Vocabulary Grade Placement Formula, 1937 Revision (Los Angeles City School District). Contains a list of over 2300 books with name of author, difficulty level, and type of content indicated. Books which appeal to retarded readers in junior high school are starred.

Books and Instructional Materials Evaluated by Means of the Lewerenz Formulas, 1938 (Los Angeles City School District). A supplement to the above list; mainly devoted to textbooks in various subjects.

A hitherto unpublished list of books for supplementary reading, intended primarily for use with retarded readers and arranged by grade levels, will be found in Appendix B. It is based primarily on a combination of ratings given in several of the lists described above.

A teacher who wants to keep up with newly published reading material for children should follow the reviews that appear in such sources as the monthly *Booklist* of the American Library Association and periodicals such as the *Elementary School Journal*, the *Elementary English Review*, the *English Journal*, and the *Horn Book*.

Booklets, Pamphlets, Newspapers and Magazines

Some of the best supplementary material for use with retarded readers is available in booklets and pamphlets. Since most of these are very inexpensive, it is possible to assemble reading matter on a wide variety of topics at little cost. Many of these little books are profusely illustrated and attractively made up. The following list is not intended to be exhaustive, but simply indicates the nature of some of the good materials now available.

Picture Scripts (E. M. Hale and Co., Milwaukee; 15¢ each). Illustrated little books of primary grade level dealing with

such topics as airplanes, animal stories, how to make mario-nettes, boat, firemen, etc.

Follett Picture-Stories (Follett Publishing Company, Chicago; 15¢ each). Booklets of 40 pages each, easy enough for grades 3 to 5, dealing with such subjects as food and trains.

Unit Study Readers (American Education Press, Chicago; 10¢ each). A series of 125 illustrated pamphlets, ranging in difficulty from grade 1 to grade 8, with difficulty indicated. Many varied topics, including Indians, trains, boats, airplanes, fairy tales, etc.

Happy Hour Books (The Macmillan Co., N. Y., 35¢). Each booklet deals with an occupation interesting to boys, such as policeman, fireman, engineer, air pilot, etc.

American Council on Education, Washington, D. C. A series of 32 and 64 page pamphlets (10¢ and 20¢ each) dealing with social science topics, usable with retarded readers at the high school level.

The possibilities in the little books obtainable at the toy counters of five and ten cent stores should not be overlooked. Many of these books are beautifully illustrated and contain very simple reading material. Some excellent stories about animals, toys, trains, etc., can be found. Useful books of riddles and books with printed directions for seat-work can also be obtained. The great interest with which thousands of children follow the adventures of Tarzan, Buck Rogers, Dick Tracy, Little Orphan Annie and Mickey Mouse indicate that reading of this sort has a great appeal for children. They will often smuggle such books into school and read them surreptitiously when they are supposed to be studying their lessons. The remedial teacher cannot afford to look down upon these little books and label them trash; any reading material that holds so much interest for children deserves serious consideration. Ratings of about 150 ten-cent books have been published by Mathis.²⁴

²⁴ D. M. Mathis, *Some Ten-Cent Books Suitable for the Primary Grades*, *Elementary English Review*, vol. 15, 1938, 233-235.

Magazines and newspapers also offer good possibilities for use with retarded readers. *My Weekly Reader*²⁵ is a weekly newspaper intended for school use, available in several editions suitable for different grades. It has been used successfully as supplementary reading in remedial programs. Daily papers may also be used to good advantage. The sections that appeal most effectively to retarded readers are the comics and sport pages for boys, and the comics and fashion news for girls. Newspapers may be used for giving specific training in reading and interpreting weather forecasts, advertisements, etc. Magazines can also be employed in remedial programs, especially at the secondary school level. Many boys with narrow reading interests enjoy poring over such magazines as *Popular Science* and *Popular Mechanics*, even though the reading matter may be quite difficult for them. The *Reader's Digest* contains many interesting articles suitable for remedial use at the secondary school level. Picture magazines such as *Life* and *Building America*²⁶ are always popular when placed on classroom library tables.

Work-Books

There has been a growing tendency in recent years to make use of work-books in teaching reading. Nearly every recent set of readers now has a work-book to accompany each book in the set. Work-books may perform several desirable functions in the reading instruction: (1) they may serve as a means of introducing new words; (2) they may contain varied types of comprehension exercises which serve to check on understanding of the reading and encourage re-reading the material with a definite purpose in mind; (3) they may include useful exercises

²⁵ American Education Press, Chicago.

²⁶ Society for Curriculum Study, 422 W. 123 St., New York.

in word-recognition and analysis skills; (4) they may provide repetition of the vocabulary of the reader in new settings; and (5) they may make it easier to provide differentiated instruction within a class. However, the work-books that accompany sets of readers differ widely in value. Some of them seem merely to be after-thoughts of the authors, and appear to have little value except as excuses for keeping children busy. A work-book should be inspected carefully before it is adopted for class use. A teacher who uses a basal reader should always obtain a copy of the accompanying work-book and look it over for suggestions that can be used in his teaching, even if he does not plan to get enough copies of it to use with his class.

In addition to the work-books designed to accompany specific readers, there are others which are intended to be used independently and which contain types of practice material that are useful in remedial teaching. Some of these will now be briefly described.

W. A. McCall and L. M. Crabbs, *Standard Test Lessons in Reading* (Bureau of Publications, Teachers College, Columbia University, New York), Books II, III, IV, V. Each booklet contains 94 exercises consisting of a paragraph followed by comprehension questions, to be administered with a 3 minute time limit. Rough grade norms are supplied which are useful as a basis for progress charts. Books II and III are suitable for grades 3, 4 and 5, and Books IV and V for grades 6-9.

A. I. Gates and C. C. Peardon, *Practice Exercises in Reading* (Bureau of Publications, Teachers College, Columbia University, New York). Three sets, intended for grades 3, 4, and 5, each set containing four booklets. Each booklet contains exercises designed for improving one of four types of silent reading ability: getting general significance, predicting outcomes, following directions, reading for details. May be used with seriously retarded readers at junior high school level.

Diagnostic Reading Workbooks (American Education Press, Columbus, Ohio). A series of six carefully graded workbooks, ranging in difficulty from first grade to junior high school. Each work-book is centered around one major topic which has high interest appeal, and contains a variety of useful remedial exercises.

L. J. Brueckner and W. D. Lewis, *Remedial Exercises in Reading* (John Winston Co., Philadelphia, 1935). Contains a large variety of remedial exercises. Suitable for retarded pupils with fourth grade reading ability or higher.

C. L. Stone, *Eye and Ear Fun* (Webster Publishing Company, St. Louis). Three good work-books of primary level for teaching techniques of word recognition and analysis.

T. G. Hegge, S. A. Kirk and W. D. Kirk, *Remedial Reading Drills* (George Wahr, Publisher, Ann Arbor, Michigan). A work-book of exercises in phonetics and blending; designed especially for use with feeble-minded children and with extremely retarded readers.

L. E. Barry, M. Madden, and M. Pratt, *Targets in Reading for High School Students* (Webster Publishing Company, St. Louis, 1938). A good work-book for retarded high school readers with sections on word recognition, word meaning, comprehension, and increasing rate.

R. Strang, *Study Type of Reading Exercises* (Bureau of Publications, Teachers College, Columbia University, New York). Contains twenty exercises designed to be helpful to retarded readers at the high school and college level. Subject-matter explains the nature of reading and gives suggestions for improving reading and study habits; this material is used as a basis for comprehension exercises.

W. A. McCall, L. B. Cook, and G. W. Norvell, *Experiments in Reading*, Books I, II, III (Harcourt, Brace and Co., 1934). A set of three work-books, each containing a large variety of exercises, of a difficulty level appropriate for the seventh, eighth, and ninth grades.

Reference Works

Dictionaries are valuable and are usable with remedial pupils whose reading ability is above the third grade level. Many complaints have justly been made about the dictionaries which have been given to school children

in the past. Confusing guides to pronunciation and definitions which were vague, abstract, and phrased in words more difficult than the ones they attempted to explain were all too common. The *Thorndike-Century Junior Dictionary*²⁷ is the one most commonly employed by remedial reading teachers.

Remedial teachers have found the use of picture-dictionaries to be very helpful in remedial work with primary-level readers. In constructing such a dictionary a noun can usually be illustrated by one picture; three pictures may be necessary to make clear the meaning of a verb, adverb, adjective, or preposition. Most remedial teachers prefer to have their picture dictionaries made by the children. When this is done the dictionary contains only words which the children need. Children are usually quite proud of their picture dictionaries and enjoy preparing them—finding and cutting out or drawing illustrations, printing the words in their proper places, making decorative covers, etc. For the teacher who wants to make use of a published picture dictionary, a rather good one is available.²⁸

Modern methods of secondary school teaching are causing pupils to resort frequently to encyclopedias in their search for information. Unfortunately even the encyclopedias designed for use by children seem to require reading ability of at least sixth or seventh grade level for adequate comprehension.

Materials Written by Teachers and Pupils

It is often necessary, as has been pointed out before, to use stories written especially to appeal to a particular

²⁷ Scott, Foresman and Co., Chicago, 1935.

²⁸ E. Vander Velde, *Self-Help Picture Dictionary* (Self-Help Dictionary Company, Battle Creek, Michigan).

Other available picture dictionaries include one designed to be used with the primer of the *Work-Play Books* (The Macmillan Company, N. Y.), and one for the *Picture-Story Reading Lessons* (World Book Company, Yonkers).

child. The first step is naturally to find out what the child's interests are. It is easy to get the child's co-operation in such an undertaking, and he is usually very proud to dictate a story to the teacher and later read it in his own words. In addition to their interest value, such stories have an important advantage in that all the words used are from the child's own speaking vocabulary and therefore easy for him to understand; training in word recognition is therefore not hampered by comprehension difficulties. Stories written by one child are often enjoyed by other children. Scrapbooks of stories written by the children themselves have great interest as supplementary reading in remedial classes. The stories should be typewritten or printed.

A remedial teacher may also find it advisable because of a scarcity of suitable books to rely largely on material prepared by himself. Sometimes stories and selections from advanced books can be re-written so as to be readable by retarded pupils. The value of stories and articles re-written in this way has been demonstrated by research.²⁹ Unless a teacher has considerable originality, he will ordinarily be more successful in adapting the writings of others than in attempting to write completely original material.

In planning story-type or informational material for retarded readers it is a good idea to make each unit short enough so that it can be finished in one remedial period. A brief introductory statement may be used to give the pupil suggestions about the way in which the selection should be read. At the end of the selection specific questions should be included which may be answered in writing or may serve as a basis for oral discussion. For written answers objective-type questions such as comple-

²⁹ H. H. Postel, The Effect of Adapting Reading Materials to Seriously Retarded Readers, *Elementary School Journal*, vol. 37, 1937, 536-540.

tion, true-false or multiple-choice items are preferable to questions which require answers in sentence form. Separate answer sheets should be provided for writing answers, so that the unit material can be used over and over again. Sentence answers are inadvisable for two reasons: first, they take up too much time; and second, poor readers sometimes may know the answer to a question but may be unable to express it because of weakness in spelling and English usage.

Materials written for remedial pupils should be written in a simple and straight-forward style, and at a level of complexity within the grasp of the pupil. Compound and complex sentences may be used in moderation, provided that they do not contain many inversions of normal word order or other involved constructions. During the writing one should naturally try to use an easy word in place of a more difficult synonym whenever possible. After the material has been written, its vocabulary may be checked against one or more of the standard word lists to make sure that it does not contain an unreasonable number of unusual or difficult words. The best test of the suitability of the story, however, is the ease with which the pupil can read it.

The following two paragraphs show how reading material can be simplified without any loss of essential meaning. The first paragraph contains more than a dozen constructions which are, according to Thorndike,³⁰ difficult for poor readers. They are printed in italics. The second paragraph is simple in sentence structure as compared with the first, and employs a much easier vocabulary. As usually happens, some of the life and color disappears when the material is simplified, but it is better for material to be less colorful than to be incomprehensible.

³⁰ E. L. Thorndike, *Improving the Ability to Read*, *Teachers College Record*, vol. 36, 1934, 123-144 and 229-241. Also published separately as a pamphlet (Teachers College, Columbia University, 1935).

Michael O'Connell was a man's man. *Given to* smoking a briar, he disdained cigarettes *as being* effeminate. He would have been frequently the opposite of sober, *but that* liquor had no effect on him. *Having grown up* in a pugnacious atmosphere, one *had only to* mention a fight *for him to be* ready with both fists; and *strong as he was*, he rarely came out second best in a scuffle. He was a typical north woods bully, *save that* he never employed profanity. This was *the more* conspicuous *inasmuch as* wild oaths were generously interlarded in the conversation of his associates. One *cannot but* admire his fortitude *in declining* to participate in such an obnoxious custom.

Michael O'Connell was a man's man. He always smoked a briar pipe and thought that cigarettes were a woman's smoke. He drank quite often but never became drunk. He was always ready for a fight, as he had grown up among people who enjoyed a battle, and was so strong that he rarely lost. He was a typical north woods bully except that he never cursed. This was easily noticed because his friends used bad language most of the time. He was a brave man to refuse to join in such a bad habit.

Since writing special materials is very time-consuming, remedial reading teachers should make every effort to utilize the materials that are available in printed form. While there is a scarcity of materials written especially for retarded readers, fairly satisfactory materials are available for most remedial needs if the teacher knows where to look.

Standard Word Lists

One of the most useful forms of research on reading has been the construction of word lists. These lists, of which many are now available, are based on actual usage

as determined by the patient counting of millions of words found in books for children and adults, and in the speech and writings of children. They have been of great value to the writers of books and authors of tests for children of all ages, and are useful to remedial teachers in a variety of ways, especially in checking the vocabulary used in teacher-made reading materials. A brief description of the word lists most valuable for remedial reading now follows :

E. L. Thorndike, *The Teacher's Word Book*, Revised Edition (Bureau of Publications, Teachers College, Columbia University, New York, 1931). A list of the 20,000 most common words found in a count of 10,000,000 words, taken from adult and child reading matter. The words are arranged in groups of 500 according to frequency of occurrence. The earlier edition contains 10,000 words.

A. I. Gates, *A Reading Vocabulary for the Primary Grades*, Revised and Enlarged (Bureau of Publications, Teachers College, Columbia University, New York, 1935). A list of 1811 words of greatest value in primary reading, arranged in groups of 500, selected on the basis of a combination of several sources of information. The earlier edition contains 1500 words.

B. R. Buckingham and E. W. Dolch, *A Combined Word List* (Ginn and Company, Boston, 1936). An alphabetical list of nearly 20,000 words, with the grade level of each word indicated as determined separately by an independent study of the authors and by each of several previously published lists.

C. R. Stone, *A Graded Vocabulary for Primary Reading*, in *Better Primary Reading*, pp. 44-138 (Webster Publishing Company, St. Louis, 1936). Also available in pamphlet form. A list of 2000 words of greatest value in primary reading, based mainly on word counts of primary readers. Also contains a separate list of the "Most Important 150 Words for Beginning Reading."

E. W. Dolch, A Basic Sight Vocabulary, *Elementary School Journal*, vol. 36, 1936, 456-460; also vol. 37, 1936, 268-272. A list of the 220 words which, according to Dolch, make up over 50 per cent of the reading matter used in schools, and

which therefore should be immediately recognized by children.

W. G. Hayward and N. M. Ordway, *Vocabularies of Recently Published Pre-Primers*. *Elementary School Journal*, vol. 37, 1937, 608-617. Lists the 311 words most commonly employed in pre-primers published since 1932, with data on the importance of each word. Useful for teachers of beginners in reading.

D. D. Durrell, *A Vocabulary for Corrective Reading*, *Elementary English Review*, vol. 11, 1934, 106-109. A list of 656 words of high frequency in both adult and child usage.

E. Horn, *A Basic Writing Vocabulary*, U. of Iowa Monograph in Education (College of Education, Univ. of Iowa, Iowa City, 1926). A list of the 10,000 words used most frequently in adult correspondence.

International Kindergarten Union, *A Study of the Vocabulary of Children Before Entering the First Grade* (International Kindergarten Union, Washington, D. C., 1928). A list of words commonly known to first grade entrants.

Up to the present, the Thorndike and Gates lists have been the ones most commonly used by writers of school books. These lists have had a great influence in establishing the trend toward books with simpler and more uniform vocabularies. They have also been of great service to the authors of standardized reading and vocabulary tests. The Stone, Durrell, Dolch, and Hayward and Ordway lists should be of considerable value to teachers of reading to beginners, whether normal or retarded. They should be especially useful as sources of words to be used before and during instruction with pre-primers and primers. Mention should also be made of the vocabulary studies by the Presseys,³¹ who have attempted to determine what technical terms and concepts

³¹ L. C. and S. L. Pressey, *The Determination of a Minimal Vocabulary in American History*, *Educational Method*, vol. 12, 1933, 205-211.

L. C. Pressey, *Fundamental Vocabulary of Elementary Geography*, *Journal of Geography*, vol. 32, 1933, 78-81.

deserve to be specifically taught in content subjects of the elementary and secondary schools.

Drill Material

Teachers often find it advisable to give more time and attention to the teaching of word recognition skills than is provided for in published reading systems. Wall charts and flash cards for words and sentences are usually available for use with basal readers for the primary grades, and work-books can be used for added practice. Besides these, there are many useful devices for teaching word recognition than can be employed. Some remedial teachers may like to use published materials for this purpose, but most of them find it not only less expensive but also more effective to make their own drill materials. Teacher-constructed drill materials are more likely than published materials to stress the particular difficulties that their pupils need to overcome.

Specific suggestions about types of drill materials that are useful in remedial reading will be found in the next two chapters, the first of which deals with methods of improving vocabulary and word recognition, and the second with the improvement of comprehension and fluency.

SUGGESTED ADDITIONAL READING

- Providing Reading Materials in the Classroom, Chapter VII in *Newer Practices in Reading in the Elementary School*, 17th Yearbook, *The National Elementary Principal*, vol. 17, No. 7, July, 1938 (Department of Elementary School Principals, National Education Association, Washington, D. C.)
- W. L. Uhl, The Materials of Reading, Chapter VII in *The Teaching of Reading: A Second Report*, 36th Yearbook of the *National Society for the Study of Education*, Part I, 1937.

CHAPTER IX

HOW TO IMPROVE WORD RECOGNITION

Words are the units from which reading selections are built. The ability to recognize words quickly and accurately is fundamental to success in reading. This is such an obvious argument that for a long time teachers devoted most of their time to teaching word recognition. When it became evident that many pupils taught in this way were deficient in comprehension and speed, a reaction against this kind of over-emphasis set in and methods which stressed comprehension and minimized word recognition became popular. These in turn resulted in failure on the part of many pupils to develop independence in attacking new words, and encouraged guessing and inaccuracy. At the present time it is recognized that comprehension is the major goal in reading instruction, but that good comprehension cannot be achieved by one who has serious deficiencies in word recognition.

Individuals with difficulty in word recognition can be classified in a variety of ways. One of the important distinctions to make is that between children who show generalized weakness and those who show a small number of specific weaknesses. The first of these two groups makes all kinds of errors. Analysis of the errors of such a child may show non-recognitions, substitutions, omissions, additions, reversals, errors on single letters and phonograms, and an impartial distribution of errors between word beginnings, middles, and endings. Children with such all-inclusive faults are common in groups of seriously retarded readers. In these cases it is necessary to start practically from the beginning and to employ a

thorough, well-rounded program for teaching word recognition.

The second group consists of children whose errors are mainly of one kind or of two or three kinds. One such child may need daily training to overcome a reversal tendency; a second may make mistakes only on vowel sounds; a third may concentrate on neglecting or mispronouncing word endings. These children have made some progress in word recognition, but have developed faulty habits or have failed to learn some important element of word recognition. Their remedial training should be aimed directly at the specific faults that are evident in their reading. Methods for use with this second group will be described in Section II. For the present, attention will be directed to programs for those with general weakness in word recognition.

I. BASIC METHODS OF TEACHING WORD RECOGNITION

Although variations in emphasis and details of procedure are numerous, there are only three basic techniques that have been developed for teaching word recognition to extremely disabled readers. They are intended for use with genuine disability cases whose reading ability is at least one year below their mental age and whose oral reading is below the second grade. These methods stress tracing and writing, sounding and blending, and visualizing, respectively.

Methods Based on Tracing and Writing

In 1921 Grace M. Fernald and Helen B. Keller described a method of teaching non-readers which emphasized tracing and writing as basic procedures. The essential features of their procedure in teaching words is stated in the following quotation.

The child was asked to tell some word he would like to learn. The word was written in large script on the blackboard or with crayola on cardboard. The child looked at the word, saying it over to himself and tracing it if he wished to do so. The tracing was done with the first two fingers of the right hand (or of the left if the child was left-handed) resting on the copy. It was never done in the air or with pencil. When the child was sure he knew the word, the copy was erased and he attempted to write the word, saying the syllables to himself as he wrote them. If he was unable to write the word correctly, the entire process was repeated until the word could be written without the copy. At no stage of the performance was he allowed to copy the word. After a few words had been learned in this way, he was shown the word in print as well as in script. The next day he was shown the word in print only. If he failed to recognize it, it was written for him. If he still failed to recognize it, it was re-taught as on the first presentation.¹

After a number of words were learned in this way, sentences were introduced. The separate words in the sentence were taught first, and then the child practiced writing the sentence from memory. When some skill in reading simple sentences had been gained, book reading was introduced. New words were presented on cards with brief exposures, and when not easily learned were traced and written from memory. Flashed exposures of words and phrases were used to build up speed in recognition. The child was allowed to read a paragraph for meaning only after he could recognize all of its words. Silent reading for content was introduced as soon as the child had a sufficient sight vocabulary and had had some practice in reading paragraphs.

This method has worked successfully with some very difficult cases who were practically non-readers. It has

¹ G. M. Fernald and H. B. Keller, The Effect of Kinaesthetic Factors in the Development of Word Recognition in the Case of Non-Readers, *Journal of Educational Research*, vol. 4, 1921, 355-377. Reproduced by special permission.

several points in its favor: (1) it enforces careful and systematic observation and study of words; (2) it makes necessary a consistent left-to-right direction in reading; (3) it provides adequate drill and repetition; (4) errors are immediately noticed and corrected; (5) progress can be noted by the child at practically every lesson; and (6) the sensory impressions from tracing, writing and saying the words reinforce the visual impressions and seem of definite value to children who have difficulty in remembering a word from its visual appearance alone.

When used as a basic method, however, this tracing-writing procedure has several limitations. For one thing, it is usable only in completely individualized tutoring, as the teacher has to direct and check every step of the child's work and has to make up materials separately for each child. A second and more important objection is that the method is an effective way to teach words, but does not give the pupil independence in solving new words. Finally, children who are taught by this method exclusively tend to develop lip-movements and movements of the arm and hand in reading which interfere later with the development of speed and fluency. These criticisms hold only when the method is used as a basic procedure, to the exclusion of other procedures. Most authorities agree that tracing and writing are of definite value in many cases as supplementary devices, when the child has difficulty learning certain words or letters by other methods.

Adaptations of the Fernald-Keller technique by other workers have been numerous.² Elaborations such as cutting letters out of sandpaper or embroidering them on cardboard with woolen yarn have sometimes been employed. These procedures are nothing more than fancy

² Methods stressing tracing and writing have been called "kinesthetic" methods because they utilize the sense of movement (kinesthetic sense).

decoration and are rarely if ever advisable. Stanger and Donohue³ have adopted the practice of having the child trace over a model with tracing paper and pencil. Hegge, Kirk and Kirk believe that tracing is unnecessary. They teach their children to sound a word letter by letter and then as a whole, and then to write it from memory while saying it, until it is learned. This they call a "grapho-vocal" method.⁴

After all, the most important feature of the method is the fact that it insures careful and systematic study of words and word elements, and provides for thorough mastery. The sensory reinforcement from tracing and writing is probably of secondary importance. For this reason the "grapho-vocal" procedure is probably more efficient than methods which involve a great deal of tracing.

Methods Based on Sounding and Blending

The place of phonetic instruction in teaching reading to normal children has been discussed at length in Chapter II. At this point it seems wise to review the conclusions reached there. Methods starting with the single letter and building up words through spelling or blending together the sounds of the letters are no longer advocated as basic methods in teaching beginners. First grade reading instruction stresses teaching words as wholes. Letter sounds and phonograms are taught by pointing out similarities and differences in words that have already been learned. It is recognized that the ability to recognize, pronounce and blend common word elements is necessary for independence in word recognition. However, it is widely believed that many children

³ M. A. Stanger and E. K. Donohue, *Prediction and Prevention of Reading Difficulties* (Oxford University Press, New York, 1937).

⁴ S. A. Kirk, *Manual of Directions for Use With the Hegge-Kirk Remedial Reading Drills* (George Wahr, Publisher, Ann Arbor, Michigan).

will acquire this ability with little or no specific teaching, and that incidental teaching of phonetics as need arises is superior to a detailed, systematic and formal program of instruction in phonetics.

Systematic methods based on sounding out letters and blending the sounds together to make words are strongly advocated for severe reading disability cases by several authorities. Detailed descriptions of such phonetic programs have been given by Monroe,⁵ Stanger and Donohue,⁶ and Kirk.⁷

In books on methods of teaching reading there have been many discussions of the relative merits of different ways of sounding out words. Three methods have been devised for sounding one-syllable words: (1) sounding the initial letter and then the rest of the word as a unit, as *c-at*; (2) sounding the initial consonant and following vowel together, followed by the rest of the word, as *ca-t*; and (3) sounding each letter separately, as *c-a-t*. Classroom teachers have tended to favor the first or the second of these three possibilities. The first has been criticized on the following grounds: (1) there is a great tendency to mispronounce the initial sound, as *kuh-at*, so that the child is misled and may say *cut* instead of *cat*; (2) the end of the word may be looked at first, thus encouraging reversal tendencies; (3) the method does not correspond to the syllable divisions which the child will have to learn later. On the other hand, opponents of the second procedure point out that: (1) the number of initial consonant-vowel combinations that would have to be taught is tremendous; (2) the child is tempted to say *bee-st* when sounding a word like *best*; and (3) the

⁵ M. Monroe, *Children Who Cannot Read*, Ch. VI (University of Chicago Press, Chicago, 1932).

⁶ M. A. Stanger and E. K. Donohue, *Prediction and Prevention of Reading Difficulties*, Chs. IX, X, and XI (Oxford University Press, New York, 1937).

⁷ Loc. cit.

method interferes with the teaching of many useful phonograms, such as *-ant*, *-able*, and *-ound*, which can probably be taught as units. As a matter of fact, a good reader needs flexibility in his ways of attacking words, so that exclusive devotion to either of these procedures of blending is undesirable.⁸

The systems of sounding-blending recommended for non-readers all use the third plan of blending, the letter by letter method. They start by teaching the child to sound and recognize individual letters. Methods for teaching individual letters are described in Section II of this chapter. They then proceed to teach the child how to blend sounds together so as to get recognizable words, starting usually with two or three letter words (*am*, *at*, *cat*). A good description of how to introduce blending has been given by Stanger and Donohue.⁹

The letters *mat* are put before the child. He is asked the sound of the first letter, then the sound of the second, and then of the third. Then he is told to make the sound of the first letter, and to hold onto it till he joins it to the sound of the second letter. It sometimes aids this blending process if the first letter can actually be moved close to the second letter, and then those two moved up to the third letter. This process of holding on to each sound till it joins the next sound is repeated, each time a little faster, until *mat* comes as a whole word. In the very early stages of this work, the wise teacher will not let the beginner become too discouraged or impatient. If he has given the individual sounds correctly, she may help him in the final blending into an actual word.

There is considerable disagreement about the order in which phonetic elements should be introduced. Kirk advocates teaching the sounds of all of the consonants

⁸ P. Klapper, *Teaching Children to Read*, Fourth Edition, Revised and Enlarged, Ch. IX (D. Appleton-Century Company, New York, 1926).

⁹ M. A. Stanger and E. K. Donohue, *Prediction and Prevention of Reading Difficulties*, p. 129 (Oxford University Press, New York, 1937). Quoted by permission of the publishers.

and short *a* to get blending started, before introducing the other vowels and the blends. Monroe believes in teaching five or six consonants at a time and combining them with the short vowels. Long vowels and blends are introduced by her after the short vowels and consonants have been mastered and blended into words. Stanger and Donohue advocate teaching the letters in groups consisting of a few consonants and one vowel.

Since different orders for introducing sounds have been used with success by different investigators, it probably does not make much difference which of the plans described in print is employed, as long as a definite and orderly sequence is followed. For those who want a guide to follow, two of the many available sequences are here reproduced. Other sequences are available in the literature.¹⁰

Stanger and Donohue present the following list of essential phonetic elements arranged in groups for teaching. Where vowels are introduced for the first time only the short sound is taught.¹¹

Set 1. <i>a, b, m, s, l, t, i</i>	Set 7. <i>g, u</i>
Set 2. <i>h, e, th</i>	Set 8. <i>n, oo</i>
Set 3. <i>r, ee, br, bl, st, sl,</i> <i>sm, tr, thr, sh, th, ble</i>	Set 9. <i>j, v</i>
Set 4. <i>o, er</i>	Set 10. <i>x, z</i>
Set 5. <i>c, k, f, ch</i>	Set 11. <i>d</i>
Set 6. <i>p, y, w, wh</i>	Set 12. <i>ing, ang, ong, ung,</i> <i>ink, ank, onk, unk</i>

Additional sounds: long vowels with final *e*, *qu*, *ow*, *ou*, *gu*, *ge*, *ir*, *oy*, *oi*, *ar*, *or*, *ay*, *ai*, *eigh*, *ea*, *ie*, *igh*, *oe*, *oa*, *ue*, *ey*.

Hegge, Kirk and Kirk have worked out a phonetic-blending system in which, for the most part, each new

¹⁰ E. A. Betts, *Prevention and Correction of Reading Difficulties*, pp. 215-217 (Row, Peterson and Company, Evanston, 1936).

¹¹ M. A. Stanger and E. K. Donohue, *Prediction and Prevention of Reading Difficulties*, Ch. IX.

sound is introduced in a separate drill. The order in which they introduce sounds is as follows: ¹²

Part I. Introductory Sounds

All consonants; the short vowels *a, o, i, u; ee; sh; oo; ch* and *tch; ar; ay* and *ai; or; old; short e; ea; oa; ck; ow* and *ou; long vowels with final e; ing; all; ight; th, wh, and qu; er, ir, and ur.*

Part II. Combinations of Sounds

An, in, and un; en and on; ink, ank, and unk; ing, ang, ong, and ung; and, ound, and est; all, ill, and ell; pl, cl, fl, bl, gl, and sl; pr, cr, fr, br, gr, tr, and dr; sp, st, sc, sm, and sw; spl, spr, str, and scr.

Part III. Advanced Sounds

Aw, au, and ew; ook, ind, oy, and oi; final y, ly, le, and ed; ge, ce, ci, and cy; aught, ought, pro, and other; re-, be-, de-, and pre-; -sion, -tion, -ation, and -ution.

Part IV. Supplementary Exercises

Exceptions: *ea, ow, th, ive*

Configurations not previously taught: *kn; gn; wr; ph; ould; alk; alm; ex-, con-, and dis-; -ous and -ful; wor; war; air and are; eigh; ie; monosyllables ending in y or ie; oll; oe; o and e as endings.*

Word Building Exercises and Compound Words: *ever, under, sea, post, school, house, some, come, where* and *there* as parts of compound words; final *e* in compound words; plural of words ending in *y*; plurals.

Exercises for Letter Confusions: *b, d, and p; m and n.*

The list just given contains far more than one would ordinarily teach a child before starting silent reading, and includes many sounds, especially in Parts III and IV, that would usually be taught only if the child were found to be confused on them. For those who plan to employ a systematic blending approach, *Remedial Reading Drills*, the work-book from which the above list was taken, will

¹² T. G. Hegge, S. A. Kirk, and W. D. Kirk, *Remedial Reading Drills* (George Wahr, Publisher and Bookseller, Ann Arbor, Michigan). Quoted by permission.

prove very helpful. This work-book and accompanying manual of directions present a thorough and well-planned program. The letter sounds are introduced slowly in a carefully arranged sequence, and the authors have provided plenty of material for practice and review. The use of a work-book like this one should lighten considerably the work of a remedial teacher who would otherwise, if teaching blending, have to spend large amounts of time in devising similar and probably not so well constructed materials. When a highly individualized method is being used with a group of children the pages can be separated so that each child can work on a different exercise.

According to Spache,¹³ phonograms that deserve to be taught should satisfy the following criteria: (1) they should consist of three or four letters; (2) they should occur frequently in basic vocabularies; (3) they should not be pronounceable in many different ways; (4) they should ordinarily be found in initial and final positions in words, thus forming good units of perception; (5) they should form a syllabic or pronunciation unit; and (6) they should be frequently found at the beginnings of words. He presents the following list of phonograms as the only ones that satisfy four or more of these criteria: *ail, ain, al, all, and, ate, ay, con, di, ed, eep, ell, en, ent, er, est, ick, ight, ill, in, ing, ock, se, ter, tion*. Phonograms that meet three of the criteria are: *ai, ake, be, de, ide, ile, ine, it, ite, le, on, ow (low), re, ri, and wi*. Initial two-letter consonant combinations worth teaching include: *cl, tr, br, ch, gr, sh, sp, st*. The teaching of these combinations in addition to the long and short vowel sounds and the simple consonant sounds gives, according to Spache, an adequate basis for phonetic analysis.

In all of the systems employing blending as a basic

¹³ G. Spache, *A Phonics Manual for Primary and Remedial Teachers*, *Elementary English Review*, vol. 16, 1939, 147-150 and 191-198.

method, new letter sounds are taught one at a time or in small groups. As new letters are learned, practice is given in blending and recognizing words composed of the letters already known. Soon short sentences and stories composed of known words can be introduced. By the time a child has learned the consonant sounds, the long and short vowel sounds, and a few of the most common two-letter phonograms, reading in books of first grade level can be started. After that the amount of time spent on phonetic drill is reduced, flash card exercises are used to promote quick recognition, and stress is placed on silent reading for comprehension. Three, four, and five-letter phonograms such as *ing*, *ight*, and *ought* may be taught, but most new words are studied as wholes and sounded out only when they cannot be read as wholes. Non-phonetic words, which comprise about fifteen per cent of English words, must naturally be taught as wholes.

All of the writers who advocate blending as a basic method of teaching retarded readers make use of writing or tracing and writing as a supplementary method, used to teach non-phonetic words and words which the pupil has difficulty in blending.

Methods Stressing Visual Analysis and Visualizing

In addition to the kinesthetic and phonetic approaches that have just been described, there is a third basic method which emphasizes visual analysis and visualizing. Such a procedure has been described and advocated by Gates. Words are taught as wholes, to be recognized at first on the basis of general shape or configuration. Pictures and illustrations are used freely as ways of introducing and giving clues to words. Work-book exercises are used to present new words and to give practice in word recognition and comprehension. The pupil is en-

couraged to close his eyes and visualize words, first part by part in left-to-right order, and then as a whole. Later he is asked to pronounce the word softly part by part while writing it. Phonetic work and writing are used as supplementary devices when pupils seem not to be progressing satisfactorily without them. Familiarity with word elements is developed through finding similarities and differences in words that have already been learned. Gates has described the method as follows:







Words are introduced gradually and re-used extensively. At first, the pupils recognize the words on the basis of general configuration and the more obvious component features. Gradually, assisted and directed by the teacher, the children learn to observe more details, more subtle features and to perceive them more quickly and accurately, to work out the recognition of unfamiliar words, and to acquire familiarity with new words in terms of these visual elements.

In this method, visual study is predominant. The writing (or kinesthetic factor) emphasized by the Fernald-Keller program and the sounding (or phonetic factor) basal to the Monroe program are almost, or entirely, eliminated.

This program produces excellent results with certain disability cases. It is a rather adaptable method, in that perception can be based upon different features of words (such as large units or small units) as fits the aptitude of the individual, and refinement can be carried out to different degrees. It is direct and rapid and harmonizes well with perception of whole words in full-fledged reading. In certain rare cases, however, it has shown limitations. In these cases, the introduction of writing in some form, or some direct phonetic instruction, or both for a preliminary orientation proved to be advantageous. In these cases, the visual study proved to be more useful after experiences with the slower and more detailed work with words. After once "catching hold" of the game by the other analytic studies, the visual study and phonetic attack upon larger units proved to be highly profitable.¹⁴

¹⁴ A. I. Gates, *The Improvement of Reading*, Revised Edition, p. 450 (The Macmillan Company, New York, 1935). Quoted by permission of the publishers.

Sharp Eyes and Ears

	tap tip top hop		hot hat hut hit		bug big bag beg
	but bat bit bet		pit pet pot pat		ham him hem hum

Practice saying the words below.
Then draw a line from each picture to the word that fits it.








	room school root stool broom stoop bloom spoon moon boot noon shoot soon goose pool loose fool tooth tool toot cool smooth food choose		rooster
			
			
			

FIG. 21. Samples of word discrimination exercises, reproduced from *Eye and Ear Fun*, Book II, by permission of the Webster Publishing Co. Reduced in size.

Essentially this program is similar to that advocated for teaching normal beginners, by Gates, Stone and others. It differs mainly in that the pupil's learning is more carefully supervised and more attention is devoted to making sure that new words are introduced gradually and really

learned than is the case in most class-room teaching. It is a program which assumes that the child has the capacity to learn as normal readers do but has been handicapped by some such factors as immaturity when first exposed to reading instruction, inefficient teaching, or something

Your teacher will read one word in each box. You are to draw a line under the word she reads. You must be sure to watch carefully, as the words in each box look very much alike.

elevator engine engineer	swing sewing sewed	plans plus minus	learning teacher learned
cameo camera curves	down dawn downy	hundred hindered handle	soiled spoil spoiled
numbers slumbers naming	often laughed lifted	same sandy sand	squeak squeeze squeal

FIG. 22. Part of a word discrimination exercise in which the pupil is to mark the one word in each box that the teacher pronounces. Reproduced from the Workbook accompanying *Now and Long Ago* of the Happy Road to Reading series, by permission of Rand, McNally and Co. Reduced in size.

else which does not affect the child's present learning ability.

Stone's set of three work-books entitled *Eye and Ear Fun* is designed to be used in a program of teaching word recognition such as that advocated by Gates. Practice is provided in discriminating between words which have first been learned as wholes. Word building games are included, and a variety of devices are given for enforcing careful comparison of words which are often confused.

Other work-book materials that may be used in connection with such a program are those which accompany the *Work-Play*, *Webster*, and *Unit-Activity* sets of primary readers.

Many of the specific procedures for overcoming faulty habits in reading disability cases advocated by followers of this general method will be described in the next section.

Comparison of the Basic Methods of Teaching Word Recognition

In the discussion of the Fernald-Keller method it was pointed out that the method does not provide a basis for successful independent attack upon unknown words, and that therefore most recent writers on remedial reading methods advocate writing and tracing as a supplementary rather than a basic method. The other two basic methods, the sounding-blending method and the whole-word visualizing method, are not subject to this criticism. The first starts with word parts and works up to word wholes; the second starts with word wholes and works down to word parts. Both recognize the necessity of providing the pupil with both the ability to recognize words as wholes and with the ability to solve the word by assembling its parts. Either method, when applied intelligently, will bring successful results in the vast majority of disability cases.

Gates has criticized the phonetic approach on the following grounds: (1) It is a "definite, rigid, hard-drill program." (2) It forfeits interest in the initial stages because real reading is not attempted. (3) It delays the reading of meaningful material much longer than the visual method does. (4) It is apt to produce slow, labored reading, with excessive amounts of lip-movement.¹⁵

¹⁵ A. I. Gates, *The Improvement of Reading*, Revised Edition, p. 448.

These criticisms can be answered in the following ways: (1) Interest and motivation are created by evidence of successful progress. (2) When the child is introduced to genuine reading he has acquired a basis which insures successful accomplishment. (3) Fluency and comprehension can be built up when a thorough basis in word recognition has been established. (4) The method works, as Gates has said, in some cases where the visual approach does not succeed.

Up to the present no one has attempted to compare the two methods experimentally by starting with two carefully equated groups of reading disability cases and teaching each group by a different method. Such an attempt would probably be inconclusive even if it were tried. The very important emotional factors that are involved in remedial teaching cannot be experimentally controlled. Furthermore, all experts agree that remedial programs must be adapted to the needs of the individual case.

The remedial teacher must be resourceful. If after a fair attempt to utilize one method, the pupil has not made adequate progress, the teacher must be willing to try something else. Adaptability to the pupil's needs is far more important than devotion to a particular plan of procedure. For example, Russell's teacher found that he was practically a non-reader and decided to use a systematic phonetic-blending method with him. He found out that the boy had had quite a bit of phonetic work in his first year and disliked it heartily. Russell said, "It's too hard, I can't do it." Thereupon the teacher switched to a whole-word method and Russell began to make progress.

Specific abilities and handicaps of pupils must be kept in mind. If a child has a handicap such as defective hearing, there are two plans open. One is to minimize

his handicap by using a method in which his handicap will not interfere. On this basis the pupil with poor hearing would be taught by visualizing and writing; the pupil with poor vision or visual perception by blending and writing; the pupil with poor muscular control by blending and visualization. The other plan is to attempt to build up his deficient ability. The child with poor hearing would be given training in hearing and discriminating sounds; the child with poor vision would be given training to sharpen visual perception of word and letter forms; the child with poor motor control would be given various exercises to improve his co-ordination, and much stress on writing. The present writer is inclined to favor starting with the idea of minimizing the handicap, and attempting to build up weak abilities later, after the child has made a good start. This would seem to be preferable from the standpoint of motivation, as it is more likely to insure successful progress from the very beginning of the remedial program.

It seems likely that any remedial program that provides adequate motivation, insures careful observation of words and word parts, and enforces consistent left-to-right habits in reading will succeed. The specific details of the method are less important than the fact that the major objectives are attained in one way or another.

II. OVERCOMING SPECIFIC FAULTS IN WORD RECOGNITION

Not all remedial cases with difficulties in word recognition need a comprehensive program of the sort described in the preceding section. Some show only one or two specific weaknesses that need to be corrected, as for example, tendencies to confuse vowel sounds, or to make excessive reversals. Others will develop during the program of remedial training weaknesses which need

Letter Teams

oi oy aw au

Two horses pulling together make a team of horses. Sometimes two letters work together to make a sound which neither one could make alone. In the words below, *oy*, *oi*, *aw*, and *au* are teams.

Practice pronouncing the words and then select and write the correct word in each blank space.

The teams *oi* and *oy* make the same sound.

boy	toy	joy	Roy	enjoy	joyful	enjoying
boil	toil	join	rejoice	oil	spoil	noise

1. These stories are reading.
2. Rain will a hat.
3. An automobile must have
4. Fire will make water
5. A story is something to

FIG. 23. Part of an exercise for teaching the sounds of vowel combinations, reproduced from Stone, *Eye and Ear Fun*, Book III, by permission of the Webster Publishing Co. Reduced in size.

special attention. In this section common types of specific faults and methods for overcoming them are considered.

Weaknesses on Letter Sounds

The number of children who do not know the sounds of many of the letters of the alphabet is surprisingly large. This is only to be expected when a whole-word approach has been the basis of previous instruction in reading, but is also found in children who have been exposed to systematic phonetic instruction.

In teaching a letter, the important thing is to provide vivid associations which the child can use in recalling its sound. One way to accomplish this is to associate the printed letter with a situation in which the sound is

made, as : *s*—the hissing of a steam radiator ; *t*—the tick of a clock ; long *o*—what we say when we are surprised ; etc. Tracing and writing the letter may be used for reinforcement. Clara Schmitt,¹⁶ in an early article that should be read by all who are interested in the history of the development of remedial methods, advocated teaching letter sounds in this way. She employed a continued story, in which bells rang (*l*), dogs barked (*r*), cows mooed (*m*), etc., one new sound being added each day. This was followed by practice in which the teacher pronounced words sound by sound (*r*-un to me ; *f*-old your hands), as a preliminary to training in blending.

Monroe has pointed out that many children who confuse letters do not hear the differences between letters clearly. She therefore advocates preliminary training in auditory discrimination.¹⁷ To teach an initial consonant sound she starts by presenting pictures of several objects, some of whose names begin with the letter. The child is taught to discriminate sounds in the following way : As the child looks at the pictures he says, “*S*—soap, yes, ‘soap’ sounds like *s* ; *s*—spoon, yes, spoon sounds like *s* ; *s*—man, no, man doesn’t sound like *s*,” etc. If the child has difficulty in pronunciation with such letters as *d*, *t*, and *th*, *s* and *sh*, *r*, *l*, and *w*, or *f* and *v*, he is taught the differences in the lip, tongue and throat movements involved in making the sounds. After the sounds can be correctly distinguished and pronounced, they are then associated with the printed letter form.

A persistent tendency to confuse two letters can be treated by following a sequence of steps : (1) Teach each of the letters in the way suggested above. (2) Present a

¹⁶ C. Schmitt, Developmental Alexia : Congenital Word-Blindness or Inability to Learn to Read, *Elementary School Journal*, vol. 18, 1918, 680-700 and 757-769.

¹⁷ M. Monroe, Remedial Treatment in Reading, *Elementary English Review*, vol. 10, 1933, 95-97, 112. Also, *Children Who Cannot Read*, pp. 116-120.

Putting in the Right Word: Words with Short u

For each sentence, underline the word that belongs in the blank space.

1. Mary found a big black bug under the
 dug hug rung rug
2. The bee Bob behind the ear
 stung sung snuff study
3. A of wind carried the boy's hat away.
 snuff puff pump punish
4. Watch your step and do not
 mumble stuff stumble struck
5. Hear the wind through the leaves.
 rusty rubbed husband rushing

FIG. 24. Part of a word discrimination exercise, reproduced from Stone, *Eye and Ear Fun*, Book III, by permission of the Webster Publishing Co. Reduced in size.

printed list of words all of which have the first letter to be taught in a prominent place. For consonants, use words beginning with the letter; for vowels, use one-syllable words with the vowel in the middle. Present a similar list for the other letter. Have the child read each list; help him when necessary. (3) Present pairs of words which are alike except that one contains the first letter while the other contains the second letter, as hill, till; can, pan; hat, hit; etc. (4) Give the child silent reading exercises of a multiple-choice or completion type, as: The cat ran after the (house, mouse); The cat ran after the —ouse. (5) Give the child sentences to read orally which contain many words in which the two letters are used. This same procedure can be used when there is a tendency to confuse two- or three-letter combinations, such as *th* and *wh*, *scr* and *str*, etc.

As an example of this procedure, assume that a child confuses *m* and *n*. The letter *m* is presented, and the fact that it has two humps like a camel is pointed out.

Then *n* is presented, and the fact that it has only one hump is noted. The two letters are sounded and written. Next a list of words such as *mat*, *milk*, *make*, and *melt* is presented and read, followed by a list such as *neat*, *not*, *nip*, and *nut*. Then, pairs of words are introduced such as *map* and *nap*, *mail* and *nail*, etc. Sentences are then employed such as: A boy grows into a (man, nan); We get light from the (moon, noon) and the (sum, sun); A —ouse ran across the roo—. Finally, oral reading of such sentences as: Many men went miles to see the sun and moon both shining at noon; or, Men and women need good manners.

Errors on Beginnings, Middles, and Endings of Words

There are many poor readers who observe carefully only the beginning of a word they cannot recognize at sight, and guess at the rest. This kind of error is common in context readers, and is also found in children who get little or no help from the context. In either case such errors tend to destroy the meaning of a passage when there are several unknown words. Some of these children are so poor that they need a thorough, basic training in word recognition of the kind described in the preceding section. Others can profit greatly from training directed specifically at this particular kind of error.

The kind of training which is most directly beneficial in these cases is based on the teaching of common phonograms which combine with initial consonants to form many different words. The procedure in teaching phonograms is similar to that described for teaching letters except that the phonogram is taught as a unit, rather than the individual letter.

Let us assume that a child has said *bent* for *band*, *make* for *main*, and *shine* for *shore*. There are six phonograms to be taught. One may start by teaching each of

Word Analysis

These words have only one vowel. If you add a vowel you will have a new word. This will change the sound of the first vowel from the short sound to the long sound. Remember that the second vowel is silent. It is sometimes at the end of the word. Sometimes it is in the middle of the word.

hid	cot	mad	ran
_____	_____	_____	_____
set	stem	rod	bet
_____	_____	_____	_____
red	bit	fed	pan
_____	_____	_____	_____
net	us	pin	hop
_____	_____	_____	_____

FIG. 25. Part of an exercise on vowel sounds, reproduced from the Companion Book for *If I Were Going*, of the Alice and Jerry Books, by permission of Row, Peterson and Co. Reduced in size.

these phonograms separately, and combining each with different initial consonants. Starting with *and*, the phonogram is presented in printed form, pronounced by the teacher and then by the pupil, and written a few times. Then such words as *hand*, *sand*, *land*, and *band* are presented and their similarity pointed out. The same procedure is followed with the other five phonograms, *ent*, *ake*, *ain*, *ine*, and *ore*. Pairs of words starting with the same letter but ending in different phonograms may next be presented, such as *sent* and *sand*, *rake* and *rain*, *mine* and *more*, etc.

After practice has been given on reading separate words involving the phonograms, the words should then be presented in context in such a way as to compel the child to pay careful attention to the total word. For this purpose multiple-choice sentences are again useful, as: The

bill	till	fill	will	spill
bell	tell	fell	well	spell
pin	fin	tin	din	bin
pen	fen	ten	den	ben
den	bill	fin	spell	ten

FIG. 26. Card for practice on short *i* and *e* as middle vowels.

man put his money in the (benk, bank, band). Unless practice on isolated words is followed by the reading of the same words in context, the amount of carry-over of the training to connected reading may be disappointingly small.

Some of the errors on word endings consist of failure to note or discriminate endings, as *-s*, *-es*, *-ed*, *-ly*, *-est*, *-er*, *-ness*, etc. Usually a little practice is sufficient to overcome these errors. After pointing out how the ending changes the meaning of a word; sentences can be used for practice such as: There are many (horse, horses) in the barn; I can run (fast, faster, fastest) than you; etc.

Confusions on the middles of words usually involve vowel confusions, and therefore call for practice on discriminating vowels. The general procedure is similar to the methods already described. One should give practice on lists of words which are alike except for the median

vowel, such as *hit*, *hat*, *hot*, and *hut*, and also practice on words which are different except for the same median vowel, such as *man*, *rat*, *pack*, and *glad*. A form of error on word middles that is found in individuals of fairly advanced reading level is the confusion of words of several syllables which have similar beginnings and endings, such as commission and communion, or precision and procession. In these cases the person must be trained to make use of the context and to attack such words systematically, syllable by syllable.

Errors on the beginnings of words are usually found associated with reversal tendencies or as one phase of serious general weakness in word recognition. When that is the case the correction of the other errors will tend to eliminate the errors on word beginnings. In cases where the beginnings of words seem to present special difficulty, procedures similar to those employed for errors on endings should be employed, except that emphasis is placed on noticing the beginning of the word rather than the ending. Exercises in alphabetizing and the use of dictionaries are also helpful, as they call attention to the beginning of the word.

Phonic Devices and Word Games

There are a great many devices and games that can be used to add variety and interest to a program of training in word recognition. They serve very well to break the monotony which may otherwise cause a pupil's effort to slacken. A few of the popular ones that have been used will now be described.

1. Lucky wheel. Two circles, one smaller than the other, are fastened together by a nail, brass pin or button-hook through their centers so that each can be rotated freely without disturbing the other. Initial consonants are printed around the outer circle and phonograms around

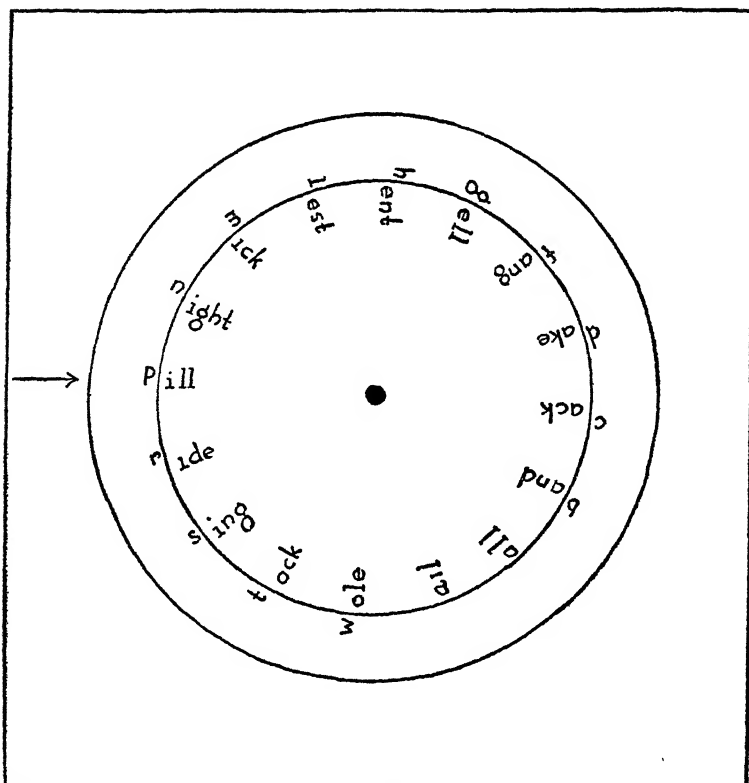


FIG. 27. "Lucky Wheel" for phonetic practice; both outer and inner circles can be rotated.

the edge of the inner circle so that different words can be formed. By rotating the outer circle different initial consonants can be combined with the same phonogram, and by rotating the inner circle the same initial consonant can be combined with different phonograms. Many variations of this general idea have been devised. Such a wheel can be used as a basis for competitive games.

2. **Phonic Strips.** Three horizontal slits, close together and in line, are made across a 4 x 6 index card. Three other slits are made directly below them. A number of thin

strips are prepared (by cutting up another index card) of a proper width so that they can be threaded through the slits in such a way as to expose only a small part of the strip. On one strip a number of initial consonants can be printed, one below the other, on a second strip middle consonants, on a third common word endings, etc. By inserting the strips and moving them up and down a large number of different words can be formed. This device can be adapted for practice on beginnings, middles, or endings, and can be used with phonograms as well as single letters.

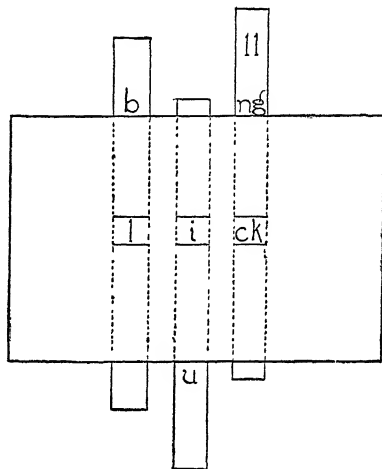


FIG. 28. A phonetic card, showing how strip inserts can be used to form a variety of words.

3. Rhyme making. Lines from several verses are printed on separate strips. The child is to pick out all the lines which end in the same sound and assemble them into a little poem. High poetic standards are not necessary. A sample verse :

The Indians on the hill,
Led by Big Chief Bill,
Are standing very still,
For they are out to kill.

4. Darts. A cheap dart and target set is used. Small cards with one phonogram on each are pasted to the target, and an initial consonant is pasted on each dart. If the child reads correctly the word formed when his dart hits a phonogram, he scores a point.
5. Bingo. Each player has a Bingo card on which words have been pasted or inserted in slits. The teacher has individual word cards which he or another child reads

aloud. As the word is read aloud, the child who has the word on his card raises his hand, calls the word, and points to it on his card. If he gets it right he gets the word card which he places over the appropriate word. The one who first covers five consecutive words in any direction wins the game. Similar adaptations can be worked out with dominoes, etc.

6. Anagrams. A cheap anagram set can be purchased, or letters can be printed on small squares of pasteboard. Word-building games of several kinds can be played.
7. Spin the pointer. Words are arranged around the outside of a circle, and the child tries to read the word at which the pointer stops. Failures and successes can be scored according to the rules of different games such as baseball and football. In baseball scoring a success is a hit and a failure is an out, and score is kept in terms of runs. By making slits into which word cards may be inserted the same circle and pointer can be used indefinitely.
8. Fishing. One word, phrase, or sentence is printed on each of a number of cardboard cut-outs in the shape of fish, to which paper clips are attached. The child picks up a fish by means of a horseshoe magnet on a string, and keeps it if he can read it correctly. Similar games can be devised involving pulling leaves off a tree, etc.
9. Racing. A large race-track is drawn and divided into boxes, in each of which a word is placed. Each child has a cut-out auto of a different color. When a child's turn comes he spins a pointer which indicates a move of one, two, three, or four boxes. If he can read the word he advances his auto that many spaces; if not, he has to wait for his next turn.

Reversal Errors

The term "reversal" is used to describe a variety of different kinds of errors, including: (1) confusion of single letters such as *b*, *d*, *p*, and *q*; (2) complete reversals of words such as *on* and *no*, *saw* and *was*, and *tap* and *pat*; (3) partial reversals of words such as *ram* for *arm*, *ate* for *tea*, and *never* for *even*; and (4) reversals of the order of words in a sentence, as "The dog saw a boy" for

"The boy saw a dog." Reversals are not the commonest types of errors in word recognition, as they are prominent among the errors of about one reading disability case out of ten. When they are present, however, they are very significant and deserve careful analysis and treatment.

Reversals are very prevalent in young children beginning to read. Apparently young children tend to think that the difference in position of letters such as *b* and *p*, or of the order of letters in words like *rat* and *tar*, is not important. They take the same attitude as they do toward a picture of a man, which they can recognize about as well when it is sideways or upside down as when it is right side up.

There are other factors besides immaturity which may cause reversal errors. Failure to develop consistent left-to-right eye movements in reading is in many cases the reason for frequent reversals. Due to regressive movements the parts of a word may be inspected in the wrong order, or words may be seen in the wrong order, and reversal errors are the result. Possible causes of reversals in a few cases are the presence of difficulty with fusion and eye co-ordination, and incomplete or mixed dominance.

Of all letter confusions, the one involving *b*, *d*, *p*, and *q* is probably the most common. These four letters are different orientations of the same form. Other letter confusions that are sometimes called reversals are *m* and *w*, and *u* and *n*. The general principles described in this chapter for overcoming letter confusions will usually suffice to remove these tendencies to reverse letters. The need for tracing and writing is greater for children who reverse letters than it is for those who make other types of letter errors, and more intensive drill is usually necessary before the confusion is eliminated.

Reversals of words, parts of words, and the order of

words in sentences usually indicate that the child needs training to develop a consistent left-to-right sequence in reading. The need for such a consistent direction should first be explained to him, with illustrations of how the words and meanings are changed when the correct order is not maintained. Then various methods may be employed to build up proper directional habits. Among the devices which have been found to work well in overcoming reversal tendencies are the following: (1) Tracing, writing, and sounding words which are frequently confused. These procedures automatically enforce using the correct sequence of letters. (2) Covering a word with a card and removing the card slowly to the right so that the letters are exposed in proper sequence. (3) Underlining the first letter in the word. Sometimes underlining the first letter in green and the last letter in red—"traffic lights"—is effective. The child is told to start on green and stop on red. (4) Encouraging the child to use a finger or pencil as a guide in reading along a line. While this practice is to be discouraged in good readers, it is very helpful as a means of teaching the proper direction for eye-movements. (5) Exposing a line of print a little at a time by means of a card, or by means of an opening cut in a card. (6) Drawing an arrow pointing to the right under words which are frequently reversed. (7) Allowing the child to use a typewriter. This has favorable effects on spelling and composition as well as on word recognition.

Omissions, Additions, and Substitutions

Omissions and additions of letters or syllables are rarely found unaccompanied by other types of errors. They are commonly associated with errors on word endings and middles. As systematic training in overcoming the other errors is given, the omissions and additions usually

disappear. About the only kind of special attention that these errors require is to have the child re-read the word on which he made the mistake and to point out the difference between what he said and what the word really is. Such errors are often noticed by the child and corrected immediately. They represent mainly a form of carelessness, and call for somewhat slower and more careful reading until the tendency is overcome. This last statement is true also of most additions and omissions of whole words.

When a child substitutes a completely different word for the word in print, he is almost always guessing or trying to make use of the context. If the substitutions he makes are reasonable ones which do not alter the meaning, such as *castle* for *palace* or *boy* for *lad*, one can usually ignore them without any great harm being done. If, however, a large number of his substitutions are such as to spoil the meaning of the passage, the fault needs to be remedied. Such meaningless substitutions, as "The boy called a house" for "The man caught a horse," indicate that the child needs thorough basic training in word recognition skills. As he learns how to recognize words the substitutions will disappear. When meaningless substitutions occur in the reading of poor readers at the secondary school or college level, they may indicate reading which is too rapid and careless, or material which is beyond the reader's level of comprehension.

Difficulties with Long Words

Above the fourth grade level, difficulties in word recognition are more apt to involve long words than short words. The word recognition habits which have been successful in learning such words as *went*, *their*, *across*, etc., do not seem to work when employed on such words as *migration*, *provocative*, *theoretical*, and *constitution-*

ally. In fact, difficulties in word recognition may arise during the upper grades in children who have previously had little difficulty with reading.

Dolch has pointed out that most of the words used in mature reading are polysyllables; 81 per cent of the words in the Buckingham-Dolch *Combined Word List* have more than one syllable. Furthermore, the phonograms such as *-at*, *-on*, etc., which are important in monosyllables and are usually taught in the primary grades, comprise, according to Dolch, only 11.6 per cent of the syllables in a count of 14,000 running words, or 38.7 per cent when their occurrence as parts of syllables is counted.¹⁸ This evidence shows clearly the need for syllabication as a tool necessary for success in mastering long words.

The main requirement in teaching an adequate method of attack on long words is emphasis on a systematic procedure of dividing a long word into recognizable groups of letters, and combining them in left-to-right order to get the whole word. The teaching of grammatical rules of syllable division is not really necessary. If the pupil shows difficulty in learning these more or less arbitrary rules, he should be encouraged to look for letter groups that seem to him to form natural units. It makes little difference whether the word "arbitrary" is divided arbitrary or ar-bit-rary, as long as the pupil is able to read it easily. Pupils should be encouraged to look for words within words, in such long words as "notwithstanding," "overcome," "recollection," and "schoolmaster." It is helpful in teaching a pupil how to attack a long word to cover the word with a card and expose it syllable by syllable.

¹⁸ E. W. Dolch, Phonics and Polysyllables, *Elementary English Review*, vol. 15, 1938, 120-124.

Inability to Make Use of the Context

Because it has been emphasized that pupils who rely greatly on the context may develop habits of carelessness in word recognition or may fail to develop other important techniques, there may be a temptation to assume that pupils who need training in word recognition should be discouraged from attempting to utilize the context at all. Nothing is farther from the truth. Pupils who have failed to acquire other methods of attack in recognizing words need to be taught the other methods, but should not be discouraged from utilizing the context. All good readers make use of context clues, so there is no reason to discourage poor readers from doing the same, except as a temporary measure while other techniques are being learned.

There are also many children — word by word readers — who have not learned how to employ the context as a way of figuring out a new word. They should be taught first of all how to guess at a word from the meaning of the rest of the sentence. In the sentence: "The man has a — with two doors," the child should be asked what the missing word could be. If he says car, he should be shown that there are other possibilities, such as house and garage. He should then be given the same sentence with the first letter of the missing word supplied, and be shown that if the letter is *h*, the missing word is probably house; if *c*, car; if *g*, garage; or if *s*, store. Sentences such as: cows give m—; dogs like to eat b—; and boys like to play b—, can be used for practice. After the pupil has grasped the idea, he will enjoy reading paragraphs in which a few words have been blotted out.

Slowness in Word Recognition

Children who have been given intensive phonetic training often develop the habit of reading painstakingly and very slowly. They try to sound out most words, and this keeps their speed far below what it would be if they could recognize the words at a glance. Readers of fairly advanced levels are sometimes slow because they have to sound out all long words, although they have no difficulty with short ones. When it is evident that because of a letter-by-letter or syllable-by-syllable attack a reader's rate is being kept unnecessarily low, practice should be given to increase speed of word recognition.

The most helpful procedure for increasing speed of word recognition is to use flash cards or tachistoscopic exposure. One should start with one-syllable words, printed one on a card. The card can be exposed in a simple tachistoscope (see page 119) or by covering the card with a blank card which is withdrawn and quickly replaced. The time of exposure should be less than half a second, so as to prevent more than one look at the word. At first the words should be short and of different shapes, such as pill, here, pony, and cart. As skill in quick recognition is gradually acquired, words of the same general configuration may be used in groups, such as hall, bill, kill, and tell. Longer and longer words can then be introduced, until the reader has developed to the point where he can recognize immediately words like opposite and superiority. Similar short-exposure practice should be also given in the reading of short phrases, such as "to me," "in the house," and "from the store."

According to Dolch, fifty per cent of the running words found in school reading material are repetitions of only 220 different words. He has published the list,¹⁹ which

¹⁹ E. W. Dolch, A Basic Sight Vocabulary, *Elementary School Journal*, vol.

consists entirely of prepositions, conjunctions, adjectives, adverbs, and verbs. He reports that three or four weeks of practice on recognizing these basic words at sight produced remarkable improvement in reading, especially in speed and fluency. Improvement in comprehension also took place because the pupils no longer needed to waste energy on these common words and were able to concentrate better on getting the meaning. This list of basic sight words gives promise of being very useful to remedial teachers.

When flashed exposures are used as a method for improving speed of word recognition, there is a possibility that the skill acquired in reading the cards may not carry over to the reading of the same words in connected material.²⁰ This danger can be avoided by giving the pupil after each flash card drill connected reading to do which includes the words that have been practiced in isolation. When this is done there should be no difficulty in getting the desired transfer of training from the isolated drill to ordinary reading.

Repetitions

The oral reading of many children is jerky and painful to listen to because of the way they continually repeat what they have already read. For instance, a child may read "The boy went for a walk with his spotted dog" in the following way: "The boy—the boy went for a—a walk—with his spo—spotted dog." Repetitions of this sort naturally cut down speed of reading, prevent fluency, and often interfere with comprehension. The treatment of repetitions depends on the particular cause that may be operating.

36, 1936, 456-460, and *The First Step in Remedial Reading, Elementary School Journal*, vol. 37, 1936, 268-272. Sets of cards, with one of these words on each card, are obtainable from the Garrard Press.

²⁰ A. I. Gates, *Functions of Flash-Card Exercises in Reading; An Experimental Study, Teachers College Record*, vol. 27, 1925, 311-327.

Some repetitions are due to slowness in word recognition. When the child comes to a word which he can not recognize, he repeats the preceding words to give him more time to solve the unfamiliar one. These repetitions will drop out as greater skill in word recognition is achieved. Another possible cause of repetitions is the presence of faulty eye movements, so that the repetitions are simply the oral equivalents of regressive movements. Exercises of the sort that have been recommended for reversals of word order may be employed to good advantage when repetitions are due to regressive eye movements. A third cause of repetitions is failure to comprehend the reading material. The child loses the trend of thought of the sentence and goes back in order to pick up the thread of meaning again. As comprehension improves the need for repetitions of this sort will disappear. Finally, many children repeat because of nervousness or self-consciousness in oral reading. They need to have their confidence built up, and then their hesitations and repetitions will diminish. These children should be given opportunities to rehearse easy selections carefully and then to read the selections before children who are unfamiliar with the story. They also need large doses of encouragement and praise.

Refusal to Attempt Words

A common type of error in oral reading is refusal by the child to try to read a word. He may stop and wait to be prompted, may try to skip it without the omission being noticed, or may simply say that he doesn't know that word. The majority of refusals are caused by inadequate word recognition techniques, and diminish in frequency as skill in word recognition improves. There are some children, however, who refuse to try words even when they have the equipment to work out the pronun-

ciation of the word. This is nearly always due to the fact that the child has not yet built up confidence in his own ability. He has developed the habit of giving up quickly as the result of a long period of frustrated effort. He needs to be encouraged and gently prodded by remarks like, "I'm sure you can get that word if you try it." When this is insufficient, he may be given hints such as, "What would the word be if the first letter were *c* instead of *t*?" If it becomes evident that he cannot solve the word, he should be told what it is and allowed to continue. He should be praised for successful efforts, and should be reminded of previous successes if he shows an inclination to get discouraged. Refusals are problems of motivation rather than skill.

Spelling is an Aid in Word Recognition

The close relationship between success in reading and success in spelling has already been mentioned in this book several times. Good readers are sometimes poor spellers, but readers who are poor in word recognition are rarely if ever good spellers.

Effective spelling instruction utilizes much the same type of procedure that has been described in this chapter. A typical classroom method of teaching spelling proceeds about as follows. The word is first spoken by the teacher in a sentence, then by itself, and written or printed on the board. The meaning is brought out through use in sentences. The word is then analyzed into component parts, with syllables separated by vertical lines, underlining, or some other device. Attention is called to difficult parts by underlining or using colored chalk. Many types of sensory reinforcement are employed, such as pronouncing the word, spelling it in concert, visualizing the word followed by recall of the visual image with the eyes closed, writing the word in the air while spelling it aloud,

and finally, writing the word from memory and checking against the correct form. It is evident that good spelling is based first of all on correct perception of the word, followed by repetition and sensory reinforcement to bring about permanent retention in memory.

Many of the devices used in spelling instruction, such as dividing the word into syllables, pointing out and emphasizing the difficult parts, and using a varied sense appeal are also effective aids in word recognition. When a word is learned so that it can be spelled from memory, it is usually recognized without difficulty in reading. An efficient classroom teacher can use the spelling period for practice on many of the abilities that are necessary for good word recognition.

Providing Materials for Remedial Training in Word Recognition

The teacher who is starting remedial work for improving word recognition may feel overwhelmed by the amount of practice material that has to be provided. At the beginning, published work-books are perhaps the best solution to this problem. Phonetic devices and flash cards that can be borrowed from teachers in the first and second grades are often a great help. As he becomes experienced, the teacher will probably develop devices of his own and preferred methods of instruction for which he must construct special materials. He should try to build up his stock of exercises and devices gradually, rather than try to develop a finished set all at once. It is important, in making up materials of this sort, to arrange them so that the same card, chart, or game can be used over and over again. One should always use very stiff paper or cardboard which will not tear easily and which will stand up under repeated use.

SUGGESTED ADDITIONAL READING

- Marion Monroe and Bertie Backus, *Remedial Reading*, Ch. III (Houghton Mifflin Company, Boston, 1937).
- Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Chs. X, XI, and XIV (The Macmillan Company, New York, 1935).
- Marion Monroe, *Children Who Cannot Read*, Ch. VI (University of Chicago Press, Chicago, 1932).
- Emmet A. Betts, *Prevention and Correction of Reading Difficulties*, Ch. XI (Row, Peterson and Company, Evanston, 1936).
- Margaret A. Stanger and Ellen K. Donohue, *Prediction and Prevention of Reading Difficulties*, Chs. IX, X, and XI (Oxford University Press, New York, 1937).
- David H. Russell, Etta E. Karp, and Edward I. Kelly, *Reading Aids Through the Grades*, Chapter II (Bureau of Publications, Teachers College, Columbia University, New York, 1938).

CHAPTER X

HOW TO IMPROVE COMPREHENSION, FLUENCY, AND SPEED

If reading were simply a matter of teaching children how to translate printed symbols into spoken sounds, the task of the teacher of reading would be relatively simple. Good reading, however, involves far more than simply recognizing words, in the same way that playing a musical instrument involves far more than just hitting the right notes. An individual cannot be called a good reader unless he is able to understand and interpret what he reads.

Lack of ability to understand reading material may be due to any one of a number of causes. Among them are: (1) inadequate skill in word recognition; (2) low general intelligence; (3) a scanty meaningful vocabulary; (4) lack of ability to read in thought units; (5) a rate of reading which is inappropriate for the kind of material being read; and (6) not enough practice in reading varied kinds of materials for specific purposes. More often than not, a poor reader is found to be deficient in several of these fundamental abilities. The development of skill in word recognition has already been treated in detail in Chapter IX, and the significance of intelligence in relation to reading comprehension has been discussed in Chapter VI. The other four factors involved in reading comprehension will be taken up one by one in this chapter.

I. METHODS OF DEVELOPING MEANINGFUL VOCABULARY

Reading Vocabulary and Meaningful Vocabulary

Most babies show that they can respond correctly to spoken words before they are able to use those words in speech. Their hearing vocabulary develops earlier than their speaking vocabulary, and throughout life the number of words to which they can react appropriately remains larger than the number which they can employ in speech or writing. The two together make up what may be called an individual's meaningful vocabulary, which therefore consists of words which the individual can interpret correctly or use successfully in communication.

In the writing of materials for beginners in reading, great care is taken to use only words whose meanings are already familiar to the children, or can be easily explained to them. The task of learning to recognize the words is hard enough without the added burden of having to learn new meanings at the same time. Because of this, the child's reading vocabulary is at first composed entirely of words which should already be part of his meaningful vocabulary. As the child progresses in reading, new words and ideas are introduced which may be unfamiliar to him in meaning as well as in appearance. Unless care is taken to make sure that he will learn the meanings of these words, they may remain for him little more than nonsense sounds. It is important to realize that a child may be able to recognize and pronounce words which convey little or no sense to him.

When, in reading, a child comes across a word and says that he does not know it, there are three possible explanations: (1) he may be able to pronounce it but has no understanding of what it signifies; (2) he may know

the meaning of the word if presented orally but be unable to recognize it; and (3) he may be both unable to pronounce it and ignorant of its meaning. If a child has difficulties of the first type, he needs to have his meaningful vocabulary built up. If his difficulties are of the second type, he needs training in word recognition. If he is weak in both word recognition and meaningful vocabulary, both kinds of training need to be given simultaneously.

Causes of Deficiencies in Meaningful Vocabulary

When a child has a small meaningful vocabulary, the first possible cause to investigate is intelligence. Low general intelligence shows itself more clearly in retarded language development and difficulty in understanding and acquiring the meanings of words than in any other way. The most important single test in the *Stanford-Binet* intelligence scale is one designed to measure the richness and accuracy of speaking vocabulary. One of the outstanding characteristics of the feeble-minded is their inability to understand words of a general or abstract nature.

Lack of intellectual stimulation and practice in the use of language are also important causes of vocabulary weakness. Words have meaning to a child only when they are related to things he has experienced or knows about. A child who has had a very restricted life is ignorant of many things that are commonplace to the average child, and so has not the basis for understanding words which refer to those things. Children whose parents are very ignorant or who speak a foreign language in the home are handicapped in their language development because they do not receive enough practice in hearing and speaking good English. Speech defects and defective hearing also interfere with the acquisition

of a rich vocabulary because they cut off many conversational opportunities.

A child who likes to read enriches his vocabulary continually with words and ideas that he gains from his reading. When a child has made a poor start in reading he usually dislikes to read and thus gives up one of the best opportunities to expand his vocabulary. A vicious cycle is set up in which poor reading restricts the opportunity to learn new words, and failure to build up vocabulary prevents improvement in reading.

The factors that have just been described as hindrances to the development of meaningful vocabulary are the same ones that were described in Chapter III in relation to reading readiness. Causes which handicap a child in making a proper start in reading continue to interfere with his later progress if they are not corrected. The same general objectives that are involved in developing readiness for reading are also important for later training in the acquisition of vocabulary.

Providing a Background of Experience

The first essential in a program of vocabulary development is to provide children with a background of meaningful experience. Vivid first-hand sensory experience is the best basis for the development of accurate concepts. For this reason trips and excursions, when intelligently planned, are excellent for broadening children's horizons. The main difficulty with them is that in most schools they occur too infrequently to make a real dent in the problem. Also when a trip is made the teacher often feels that he has done well if he gets the children back safely. The opportunities for developing meaningful concepts and vocabulary are too frequently neglected. When first-hand experience is not available, visual teaching materials such as moving pictures, lantern slides, pictures,

and charts are the best substitutes. Story telling and oral reading by the teacher are also valuable ways of imparting experience, especially in the lower grades. Practice in the use of language is highly important. Natural opportunities for intelligent listening and speaking arise in discussions, reports, informal conversation, and dramatics.

Developing Vocabulary Through Wide Reading

The point of view has been advanced that a child should learn most of his new vocabulary simply by reading widely in interesting material. When reading matter is easy enough, a pupil can get a general idea of the meaning of a word from its setting, even if the word is completely new to him. If the word is an important one, he will come across it often enough in different settings to learn its meaning more exactly. If it is a word that occurs rarely, or is not a key word, it does not matter very much whether he develops a really accurate conception of it or not.

Some striking evidence in favor of this point of view has been presented by Thorndike.¹ He made a word count of four and a half million words taken from books recommended for elementary school children. Of the 20,000 words in his *Teacher's Word List*, only 2500 occurred frequently. Besides these, 18,000 words were found in the word count, of which 37 per cent occurred only once, and only 39 per cent occurred more than four times. He concluded that "of the 60,000 or more different words that would be found in books recommended for reading by pupils in grade eight or below, the majority would occur only rarely, probably not oftener than

¹ E. L. Thorndike, *The Vocabulary of Books for Children in Grades 3 to 8*, *Teachers College Record*, vol. 38, 1936-37, I, pp. 196-205; II, pp. 316-323; III, pp. 416-429.

once in three million words, or fifty books of the average size for juveniles." Because of the impossibility of teaching all or most of the words that a child will meet in his reading, Thorndike recommends providing pupils with a wide variety of interesting books that are easy enough so that the new words and ideas can be learned from the context, as the best solution to the problem of vocabulary building.

There is experimental evidence that normal pupils profit considerably from wide reading even when given little or no help by the teacher.² It is doubtful, however, that an exclusive reliance on wide reading of easy material will in itself provide a satisfactory solution to the vocabulary problem. The main trouble with it is the great difficulty of finding enough suitable material. This is especially true in the case of retarded readers, since they are the ones for whom appropriate reading matter is most scarce. Many of them, especially those who are word by word readers, are not likely to profit from such a program because they have difficulty in making use of the context as a means of learning words. For poor readers, wide reading of easy material is necessary as part of the remedial program, but is not sufficient by itself. The carefully conducted studies by Gray and Holmes³ have demonstrated the value of instruction in vocabulary for normal readers; poor readers need such instruction even more.

Teaching the Meanings of New Words

Even if a much larger supply of suitable reading matter becomes available in the near future, there will still

² R. Haefner, Casual Learning of Word Meanings, *Journal of Educational Research*, vol. 25, 1932, 267-277.

³ W. S. Gray and E. Holmes, *The Development of Meaning Vocabularies in Reading*, Publications of the Laboratory Schools, No. 6 (Department of Education, University of Chicago, Chicago, 1938).

be many words whose meanings will have to be taught carefully. Each of the content subjects has a special vocabulary of its own that must be learned. One cannot expect a pupil to understand without assistance technical terms such as dividend, factor, and decimal in arithmetic, longitude and latitude in geography, and similar technical terms in history, science, and other subjects. Whenever an important new concept or idea in any subject is introduced, there is need for detailed explanation. Such explanations should be concrete and vivid, and should rely mainly on illustrations and examples rather than on dictionary-type definitions. Many of the student boners which teachers are fond of relating are due to ineffective teaching. When, for instance, a boy is told that frantic means wild, and offers the sentence, "I picked a bunch of frantic flowers," it is clear that the teacher did a very superficial job in teaching the meaning of the word.

The conventional method of teaching new words is about as follows. The teacher looks through the story and picks out the new words. Before the children read the selection the teacher writes the new words on the board, usually explaining each word and using it in a sentence. The children may be asked to suggest other sentences in which the words are used. When the list is long, as much as a third of the reading period may be devoted to word study. Typically the teacher follows the same method every time a new selection is introduced.

One of the main difficulties with this procedure is that entirely too much time may be spent on word study. It is impossible, as Thorndike has clearly pointed out, to teach all or even half of the words that a child is apt to meet in elementary school reading. It is therefore necessary to try to select for special presentation only words which are really important or essential for understanding

the selection. Many of the new words can be easily learned from the context, or will recur so rarely that it is a waste of time to teach them. In selecting new words, teachers should make use of the aids which most new sets of readers contain. One of these aids is a list at the back of each book, in which all new words are indicated and the page on which they occur for the first time is stated. Some of the manuals that accompany sets of readers make specific suggestions about which words are worth teaching. When a teacher is doubtful about teaching a word, he can look it up in one of the standard word lists to find out how important it is.

A procedure which is less time consuming than the one described above is to let the pupils read the story without any preliminary vocabulary preparation, and then ask them at the end what new words caused them trouble. These words can then be explained in the usual way. The number of words that the pupils will ask about is nearly always less than the number that the teacher would have selected for preliminary teaching. This method also has the advantage that the teaching arises from a need felt by the pupils, and therefore is more apt to produce effective learning. The difficulty with it is that the poorest readers may be embarrassed by the number of words they do not know and may not ask any questions.

Many teachers assume that once a word has been taught, no review on it is necessary. There is some justification for this point of view, since important words will occur again and again in the child's reading. However, practice in using the new word in various ways is important if clear and accurate meanings are to be developed. The weaker the caliber of the student, the more practice he needs.

There are many kinds of exercises and games that can

be used to give training in word meanings through practice in various kinds of relationships between words. They can be adapted for either oral or silent work. In the latter case it is necessary to prepare mimeographed sheets or to write the questions on the board and use answer sheets. Many useful vocabulary exercises can be found in published work-books. Some samples of different kinds of word-meaning exercises now follow :

Synonyms

1. What word means the same as : good ? attractiveness ? uncivil ?
2. Underline the word that means the same as *quiet* : noisy, pretty, still, steady.
3. A tactful remark is : (1) rude (2) courteous (3) deceitful (4) intact.
4. List all the words you can think of that mean about the same as *happy*.

Opposites

1. What word means the opposite of : big ? warlike ? pretentious ?
2. Underline the word that means the opposite of *curved* : twisted, bumpy, round, straight.
3. A *compulsory* act is not : (a) optional (b) contagious (c) necessary (d) repulsive.
4. Animated — lethargic. Same Opposite (underline one).

Classification

1. What are the parts of : an automobile ? a plant ? a city government ?
2. A *wing* is a part of : (a) an animal (b) a bird (c) a fish (d) a plant.
3. Make one list of the fruits and another list of the vegetables in the words : orange, potato, pineapple, spinach, lettuce, pear, pea, grape, bean, lemon, squash, cucumber, strawberry, peach.
4. Make a list of all the kinds of clothing you can think of (or jobs, colors, animals, vehicles, etc.).

Analogies

1. Foot is to hand as shoe is to ——
2. Good is to bad as light is to: bright, naughty, dark, happy.
3. Governor: state:: mayor: (1) city (2) town (3) country (4) president.

The major purpose of the kinds of exercises just illustrated is to clarify the meanings of words through bringing out important relationships between ideas. As the child comes to see these relationships his understanding of the words becomes more accurate, and he is therefore able to use and interpret them more effectively. When in going over the answers to exercises like these it is found that some of the words are unfamiliar, the teacher can take the opportunity to teach the meaning of the words and also to add them to the child's reading vocabulary. Vocabulary tests can also be employed deliberately to afford opportunities for introducing and teaching new words.

The Use of the Dictionary

As soon as possible, children should be taught to make use of the aid furnished by dictionaries and glossaries as a method of acquiring new word meanings independently. Alphabetizing and the use of a simple glossary can be taught as early as the third grade. Picture dictionaries can be employed from the very beginning of reading instruction. From the fourth grade up, regular dictionaries can be used. The big drawback in the past with regard to dictionaries has been the very poor type of dictionary that was available for elementary school use. Now that more suitable dictionaries (see Chapter VIII) are available, teachers should make instruction in the use of dictionaries a definite part of their reading instruction. Pupils have to be taught how to use diction-

aries. They need to learn how to locate a word in the alphabetical list, how to use the guide to pronunciation, and how to interpret typical dictionary definitions. These skills can be learned by pupils in the intermediate grades and by older retarded pupils.

The disinclination of many pupils to make use of their dictionaries is due partly to inability to locate a word quickly and easily. Training in alphabetizing should start with a list of words, each beginning with a different letter, which the pupil is to put into alphabetical order. The second step involves the use of words which start with the same letter but have different second letters. Next, words which have the same two or three initial letters may be used. When these skills have been learned, contests can be arranged in which the pupils are given lists of words and race to see who can locate the most words in a given length of time.

It is one thing to teach pupils how to use dictionaries and quite another thing to make sure that they will actually make use of them. Pupils must be stimulated to take advantage of the opportunities for self-help that dictionaries offer. Vocabulary notebooks are effective in encouraging use of dictionaries. When such notebooks are used a pupil is expected to enter in his notebook new words that he meets in his reading, together with a brief description or explanation of each and one or two sentences illustrating its use. Very important new words should be looked up immediately. Others can be allowed to accumulate until the pupil has fifteen or twenty new words, and then these can be looked up at one time. This procedure reduces the irritation many pupils feel if they have to interrupt their reading frequently to consult a dictionary. If the teacher looks over the notebooks from time to time, makes a note of progress, and gives praise for good work, motivation will be sufficient

to keep the notebooks from being neglected or done in a perfunctory manner.

With individual teaching procedures slips of paper or cards are sometimes preferable to notebooks. There should be a separate slip or card for each word. Index cards cut into strips are excellent for this purpose. The word should be written on one side and the definition and illustrations should be placed on the back. Children can easily test themselves on such material or can work in pairs, each testing the other. If a pupil learns twenty new words in a week in this way, he will add about 800 words to his vocabulary in a school year, besides those which he learns otherwise.

A useful vocabulary notebook designed to accompany the *Thorndike-Century Junior Dictionary* has been issued.⁴ It contains directions for using the dictionary and many pages for entering new words, with columns for the word, its pronunciation, where it was met, what it means, where it has been met since the first time, and how the student has used it. A useful work-book for developing vocabulary at the secondary school or college level has been developed by Steadman to accompany his book on methods of developing vocabulary.⁵ Gilmar-tin's work-books⁶ also have some valuable exercises in vocabulary development and the use of dictionaries.

II. DEVELOPING ABILITY TO READ IN THOUGHT UNITS

There is an old saying that describes some people as unable to see the forest because of the trees. This applies just as well to reading as to other activities. The

⁴ *Getting Acquainted with Words* (Scott, Foresman and Company, Chicago, 1937).

⁵ J. M. Steadman, *Vocabulary Building* (Turner E. Smith and Company, Atlanta, 1937).

⁶ J. G. Gilmartin, *Vocabulary and Pronunciation, Workbook No. 4* (Newsom and Co., New York, 1933).

child who reads word by word has difficulty in getting the meaning of a unit of thought such as a phrase, clause, or sentence. After he has read the words, he often has to go back and re-read, and even then may find it difficult to extract the sense. Excessive emphasis on word recognition, phonetic analysis, and isolated word drills of various kinds is often responsible for word by word reading. The child's attention is so concentrated on reading words that he does not learn to respond to groups of words as meaningful units.

Practice in Reading Phrases

Word by word readers need to be taught first of all how to read phrases. The child has to be shown that "to" by itself does not convey meaning, and "to the" is not meaningful, but that "to the house" or "to the park" does tell something. Once he has grasped the significance of reading in phrases, he should be given practice in reading them as units. Short phrases of two or three words, such as "to me" or "from the desk" can be printed on flash cards. They should be presented at first with a fairly long exposure, and then with shorter and shorter exposure until the child can read the whole phrase about as quickly as one of the words.

The reading of isolated phrases should be followed by the reading of similar phrases in connected material. At first the phrases should be clearly marked so that the child cannot miss the grouping of the words. When printed material is used, one can underline the whole phrase with a continuous line, or set it off by vertical lines. This can be done in the child's reader. When the material is typed, mimeographed, or printed by hand, perhaps the best way to set off phrases is to leave additional space between the phrase and the rest of the sen-

tence. For instance, the same sentence can be presented for practice in phrase reading in the following ways :

The boy is going to the store for some milk.

The boy | is going | to the store | for some milk.

The boy is going to the store for some milk.

It is often effective for the teacher to show the child how a sentence should be phrased by reading it to him orally, and then have the child read the same sentence immediately afterward. Choral reading in which a group of children read a passage out loud together is also helpful in developing a feeling for the way words should be grouped in reading. The better readers in the group set the cadence, and the poorer readers are carried along. Oral reading in general provides good practice in phrasing because any errors in grouping words are immediately apparent and can be corrected.

When a child has developed some skill in phrase reading, he can be given printed material and asked to mark off the phrases and groups of words that form units of thought. After he has marked the material he can read it silently and orally for added practice.

Teaching the Use of Punctuation Marks

Some children become confused in reading connected material because they do not make use of the clues provided by punctuation. They have not learned to recognize a capital letter as a sign of the beginning of a sentence, a period or question mark as the end of a sentence, or a comma as a "partial stop" separating parts of a sentence. Children of somewhat higher reading ability may need assistance in the interpretation of semicolons, colons, and dashes. Simple explanation and supervised

practice in noticing punctuation marks will usually overcome difficulties of this sort. If errors persist, coloring the first letter of a sentence in green, commas in yellow, and periods in red is an effective way to emphasize the punctuation.

As a follow-up after the teaching of punctuation one can employ unpunctuated material. The pupil is given a selection that has been prepared with all punctuation omitted, and is asked to insert the necessary symbols. If he has difficulty, he should be asked to read the passage orally. He may need to repeat considerably before he is able to decide where the punctuation marks belong. If he makes errors, they should be corrected and the reasons for the correct insertions should be explained.

Improving Ability to Read Sentences

As a child improves his word recognition, enlarges his vocabulary, learns to read in phrases, and develops an appreciation of punctuation, his ability to read sentences improves. Little else is usually required other than to give him practice in reading sentences and answering questions on them designed to test his comprehension.

When it is evident that weaknesses in reading sentences are prominent features of a pupil's comprehension, practice should be given in reading sentences, with a specific question asked about each sentence. The essential ideas of most sentences can be tested by questions asking who, what, where, when, how, or why. Some sample types of sentences and questions are as follows :

1. A horse can run fast.
What can a horse do? _____
2. Honest men can be trusted not to steal. True False
3. Do most automobiles have more than four wheels?
Yes No

4. We were awakened by one of the servants who seemed alarmed.

How did the servant feel? happy angry disappointed afraid

5. Although they had to endure many hardships, the soldiers at Valley Forge remained confident that they would win the war because of their faith in their leader.

Check one: —The soldiers were afraid that they would lose.

—The soldiers trusted their general to bring victory.

—The soldiers had an easy time resting at Valley Forge.

Difficulty in understanding sentences is related to the complexity of sentence structure. Simple sentences are usually understood without difficulty, provided that the pupil knows the vocabulary. Compound sentences with clauses joined by *and* or *but* are also generally easy. Complex sentences which contain subordinate clauses tend to be more confusing. When a pupil has difficulty in unravelling complicated sentences, guidance in sentence analysis is needed. Asking the pupil who the sentence is about, what did he do, to what did he do it, etc., and showing him the answers when he cannot find them is a serviceable procedure. The use of formal grammatical terms such as "prepositional clause" may confuse the pupil more than it helps.

The understanding of dependent or subordinate clauses depends to a considerable extent on familiarity with the meanings of the words that are used to introduce them. For effective reading above the lower grades it is necessary to understand the shades of meaning indicated by the commonly used connectives. For reading of any degree of complexity, acquaintance with the following list is essential:

Who, which, what, that, from whom, to which
How, like, so as, so that, in order to
Because, since, as
Until, as soon as, before, while, as, after, following
If, unless, provided that, whether, should
As well as, all but, hardly, except, without, although
However, moreover, therefore, nevertheless

One of the main reasons why these words may cause trouble is the fact that many pupils are not accustomed to speech and conversation which makes use of them to any extent. Practice in the construction of sentences employing these connectives is one good way to clarify their meanings so that they can be understood when they are met in reading. Paraphrasing or expressing the same idea in different words is another valuable form of exercise for this purpose.

III. IMPROVING RATE OF READING

Rate of Reading and Comprehension

Speed of reading must be considered in relation to comprehension. The ideal goal is to attain the maximum rate of reading that allows adequate understanding. It is obvious that reading which is too fast often prevents full comprehension. Reading which is too slow wastes time that could profitably be used otherwise. In addition slow reading may interfere with comprehension, because the beginning may be forgotten by the time the end of the selection is reached.

In Chapter II it was pointed out that a rate of reading which is ideal for some purposes may be inappropriate for others. Some types of reading matter should be read quickly, while others need to be read deliberately and carefully. Yoakam⁷ has distinguished four rates of read-

⁷ G. A. Yoakam, *Reading and Study*, pp. 64-68 (The Macmillan Company, New York, 1928).

ing, and has described the kinds of reading situations in which they should be used. (1) The fastest rate is that used in skimming. It should be employed for glancing through a selection to get a general idea of its contents; for locating a specific fact such as a telephone number, an entry in an index, or a date or name given in a paragraph; or in more or less aimless browsing. (2) A rapid reading rate is suitable for reading material which is quite easy or already familiar, or when one wants to get the main ideas without paying attention to the details. It is satisfactory for superficial but not for careful reading. (3) A normal reading rate is one which the individual employs for reading fairly easy material when he is not in a hurry. It allows the reader to note details as well as the main thought. (4) A slow, careful rate is necessary when material is of a high degree of difficulty owing to the terms, facts, or ideas it contains; when it is important to note minor points or to follow a set of directions; or when one is reading with a critical attitude and wants to evaluate the correctness of the author's conclusions.

The choice of an inappropriate rate of reading is sometimes an important factor in comprehension difficulties. Some children are given a reading diet which consists almost entirely of light, easy fiction, and become rapid, fluent readers. Later on, when they are expected to read materials which require careful study, they try to employ the same reading habits that are effective in their recreational reading. Then their tendency to read rapidly and superficially produces sad results. Other children are drilled carefully for accuracy from the very beginning. They find it easy to note details in their reading, but may experience difficulty in discovering the central thought of a selection or in following a sequence of events.

In regard to speed and comprehension, an individual

may show one of three patterns: he may be retarded in both rate and comprehension; he may have a satisfactory rate but poor comprehension; or he may have satisfactory comprehension but be excessively slow.

When a pupil is poor in both speed and comprehension, the major efforts of the remedial teacher should be expended on the improvement of comprehension. Speed should not be emphasized at all until there is an adequate basis for reading with understanding. Many of the factors which interfere with comprehension also retard speed. As a pupil develops more effective word recognition habits, acquires a more extensive vocabulary, and learns to read in thought units, his speed will increase even though no attention is specifically devoted to it. This principle of stressing comprehension rather than speed when both are weak should be adhered to in all cases except those in which it is felt that excessively low speed is a major factor in preventing better comprehension.

Pupils who read at a rapid rate but whose understanding is poor likewise need training which emphasizes comprehension. Many of this group are context readers, whose difficulty is due in part to inadequate word recognition techniques. When that is true, emphasis should be devoted first of all to the improvement of word recognition. In other cases, the trouble may simply be due to an attempt to employ a rapid or skimming rate on material which requires careful reading. The first step in overcoming this difficulty is to explain to the child that he is underestimating the difficulty of the material and is not reading carefully enough. The second and major step is to check for comprehension everything that he reads. Many different kinds of reading matter and varied types of comprehension checks should be employed. Methods of checking comprehension are de-

scribed in Section IV of this chapter. It is not advisable to place much stress on slowing down the rate of reading, since it is desirable to retain as much speed as is consistent with adequate comprehension. As the pupil learns through experience the degree of accuracy that is necessary in different kinds of reading, he will develop ability to adjust his rate to the requirements of his task.

When comprehension is satisfactory but rate is below normal, the remedial teacher can concentrate his energies directly on the problem of increasing speed. This is the easiest of all remedial problems, and one in which considerable improvement can be confidently expected in practically all cases.

Methods for Developing Greater Speed in Reading

There are two main points of view about the best method of procedure for improving rate of reading. One of them is based on the principle of giving direct practice for the improvement of eye movements. The other relies on providing easy reading material and effectively motivating the pupil to improve his rate of reading.

On the basis that slow reading is accompanied by many fixations and regressive eye movements, some writers have advocated types of reading practice that are designed to provide direct practice in making correct eye movements. One such system is that advocated by Cole. The pupil starts by practicing on a page of widely spaced lines, with three regular spaced stopping places indicated on each line by dots or crosses. "The pupil who is reading is told to look at the first dot on the first line, then to slide his eyes along the line to the right until he comes to the second dot, and again slide his eyes to the right until he comes to the third dot. He then brings his eyes back along the diagonal to the second line; he stops at each of the three crosses on this line and then brings his eyes

back to the beginning of the third. He proceeds in this way down the page."⁸ This is done for a few days, with about five minutes of practice each day. Then he is given pages with three widely spaced words on each line. After that he proceeds to other pages which present connected stories typed so that there are three widely spaced pairs of words on each line, and finally to stories with three groups of three words on each line. This program is supplemented with brief exposures of words and phrases by means of flash cards and lantern slides.

An impressive machine called the *Metron-O-Scope*⁹ has been devised to give training in eye movements and increase speed of reading. In order to prevent regressive movements and force left-to-right eye movements, a triple shutter arrangement is used. The reading matter is printed on a long roll, which unwinds so that one line of print is behind the shutters at a time. The words in each line are printed in three groups, with spaces in between the groups. The three shutters open one after the other so as to expose one-third of the line at a time. By varying the speed at which the shutters open and close, it is possible to vary the rate of presentation from very slow to extremely fast, at any speed that is desired. As the pupil's rate of reading increases, the speed of the machine can be increased so that he always has to exert effort to keep up with it. There are models of the machine adapted for individual or group use. Good results from the use of the *Metron-O-Scope* have been reported by Taylor.¹⁰

One of the difficulties with the *Metron-O-Scope* is that it assumes that good readers read at a uniform rate

⁸ L. Cole, *The Improvement of Reading*, p. 98 (Farrar and Rinehart, Inc., New York, 1938). Quoted by permission of the publishers.

⁹ Distributed by the American Optical Company.

¹⁰ A. E. Taylor, *Controlled Reading* (University of Chicago Press, Chicago, 1937).

throughout a selection, and make exactly three fixations on each line. At least, the training it provides is designed to produce these effects. Eye-movement studies show, however, that good readers vary their rate somewhat during the reading of a selection, and that few if any of them consistently make three fixations to each line. Instead their rate and fixations continually change according to the material they read.¹¹

Dearborn has described some experiments in the use of motion picture apparatus for presenting reading material phrase by phrase at a controlled rate of speed.¹² A full page is thrown on the screen at one time, and the speed of reading is controlled by the fact that one phrase at a time stands out distinctly against the rest of the page. Speed can be changed by varying the rate at which the film unwinds. This technique seems to approximate a normal reading situation more closely than the *Metron-O-Scope* does. Other techniques for pacing the reader have also been employed. One of them is to project reading material on lantern slides and pace the readers by moving along the lines with a pointer or a flash-light beam.

The other point of view regards inadequate eye movements as symptoms of poor reading habits rather than causes of them. The major cause of slow reading is considered to be lack of enough practice in reading very easy material and lack of motivation to improve speed. It is assumed that when these difficulties are overcome, the eye-movements will show decided improvement.

The major emphasis, according to this point of view, should be placed on providing motivation for increasing

¹¹ E. D. Sisson, Habits of Eye-Movement in Reading, *Journal of Educational Psychology*, vol. 28, 1937, 437-450.

¹² W. F. Dearborn, I. H. Anderson, and J. R. Brewster, A New Method for Teaching Phrasing and for Increasing the Size of Reading Fixations, *Psychological Record*, vol. 1, 1937, 459-475; Controlled Reading by Means of a Motion Picture Technique, *Psychological Record*, vol. 2, 1938, 219-222.

Picking up Potatoes (214 words)

Read this story carefully. Then draw a line under the word below the question that is the best answer. Be ready to read the sentences

in the story that show that your answers are correct.

Mr. Hart's potatoes were ready 5
to be dug late in June. Pete drove 13
two mules which pulled the potato 19
digger. This machine stuck its iron 25
fingers down under the potato vines. 31
It lifted out a clump of dirt and po- 39
tatoes. Then it sifted out the dirt 46
and laid all the potatoes in a row 54
on the ground. Fred and Jack 60
picked up the potatoes. Pete's two 66
small boys helped, and so did two 73
strange men who came to help with 80
the job. Before the first day's work 87
was over, Jack found that picking up 94
potatoes was the hardest work he 100
had ever done. Stooping over hour 106

after hour made his back ache. 112
The sun seemed to burn hotter 118
than he had ever before felt it. Mr. 126
Hart had a whole carload of po- 132
tatoes to sell. Jack was very sure 139
that if there had been many more 146
he would have left that farm. 152

Mr. Hart told Fred and Jack that 159
when he was a boy he had to dig the 169
potatoes with a hoe. That was just 176
as hard work as picking them up. Even 184
then they often cut the potatoes with 191
the hoe. The boys said they were 198
thankful that they did not have to 205
dig the potatoes as well as pick them 213
up. 214

1. When did Mr. Hart dig his potatoes?
May June July August
2. What did he use to dig them?
hoe plow machine hands
3. How many people picked up the po-
tatoes?
two four six eight
4. What kind of work was it?
easy fun hard pleasant
5. How many potatoes did Mr. Hart sell?
bushel quart wagon carload
6. What did Mr. Hart use to dig potatoes
when he was a boy?
hoe plow machine hands
7. How did the boys say they felt about
the new way of digging potatoes?
sorry angry happy thankful

Number correct _____

FIG. 29. An exercise which provides practice in timed reading, noting details, and motivated oral reading, reproduced from Brueckner and Lewis, *Remedial Exercises in Reading*, by permission of the John C. Winston Co. Reduced in size. Exercises of this general type are valuable and are used frequently in remedial programs in the upper grades and secondary school.

speed. For this purpose the best procedure is to explain to the child the desirability of increasing his rate of reading, and then to test his rate frequently by means of informal speed tests. Methods of conducting informal

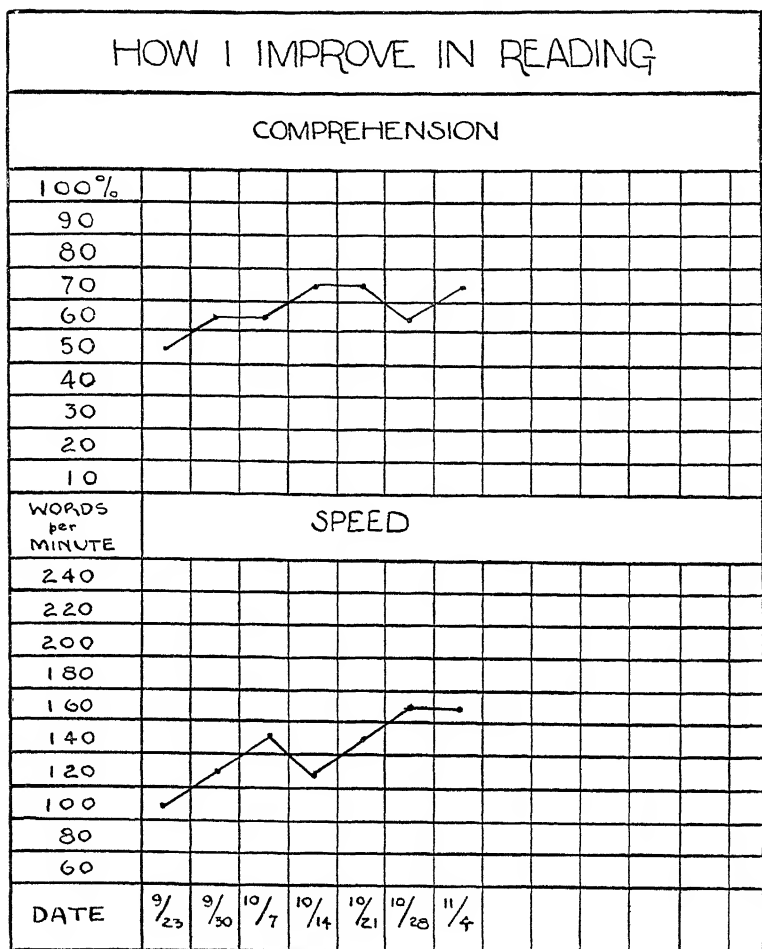


FIG. 30. Individual progress chart suitable for more mature pupils, for recording results on periodic informal tests.

tests of rate in silent reading have been described on page 77. Relatively easy material should be used for such tests. Each child should have a graph or table on which he enters his performance after each test, and should be encouraged to try to improve his rate on every test. Sim-

ply calling the pupil's attention to the need for added speed and providing him with an incentive to increase it is often all that is necessary to bring about the desired improvement.

Along with the speed tests it is important to encourage the child to do a large amount of reading in interesting, easy material. Fiction of a kind that the child enjoys is the most suitable for this purpose, as the desire to find out what will happen next automatically provides motivation to read at a fairly fast rate. Some children fail to develop fluent and rapid reading because most of their practice has been on material which is hard for them. It is impossible to read quickly when the reading matter is so difficult that it is necessary to puzzle over each sentence. Speed and fluency develop naturally as a result of much practice in reading easy material. Providing such materials and encouraging slow readers to read them quickly just for enjoyment is therefore a very useful and necessary part of the program for speeding up reading.

In addition to the general types of training just described, there are certain interfering habits that must be overcome if a satisfactory rate of reading is to be developed.

One common cause of slowness in reading is a narrow span of recognition. The individual reads letter by letter or syllable by syllable, and is unable to perceive whole words or short phrases as units. A small recognition span is usually the result of excessive oral reading and drill on phonetic analysis. In some cases the child may be found to be sounding and blending every word. The best kind of practice for broadening the recognition span is to give training in the recognition of words and short phrases as units, by means of tachistoscopic exposure or

flash cards. This kind of exercise has been described on page 262.

Occasionally one finds a child who has difficulty in making a return sweep from the end of one line to the beginning of the next line. This is shown in the observation of his eye-movements by the fact that he makes one or two extra fixations at the beginning of each line. There are a few children who develop the very wasteful habit of dropping straight down to the beginning of the

Paragraphs to Read

<p>Read the paragraphs below. Be sure to read to end of each line and then to move your eyes</p>	<p>along the dotted line to the beginning of the next line.</p>
<p>A little black and white dog lived in a barn. All he had to do was to keep mice out of the barn. One day he said,</p>	<p>to stay away. I shall find something better than mice." Soon a rabbit hopped by. The little</p>

FIG. 31. Sample from an exercise to develop return sweep, from Brueckner and Lewis, *Remedial Exercises in Reading*, by permission of John C. Winston Co. Reduced in size.

next line and then moving leftward along the line until they find the beginning of it. This habit results in taking nearly twice as long to read the line as is necessary, because the child goes over it twice. To overcome difficulty in locating the beginnings of lines, one can use widely spaced lines, with diagonal lines connecting the end of each line with the beginning of the next line. The child is instructed to try to look along the diagonal until he reaches the beginning of the next line. As he improves, the lines can be spaced closer together and eventually the diagonal lines can be omitted.

Perhaps the most common habit that retards speed is the tendency to mumble or make lip movements during silent reading. This slows down silent reading to the

speed of oral reading, while it should be much faster for pupils above the third grade. In most cases reminding the child that he is not supposed to move his lips is all that is necessary. In cases where the habit persists in spite of the child's efforts to overcome it, one can prevent lip movements by having the child hold a pencil or a finger in his mouth, or by having him chew gum while reading silently.

Other habits that tend to retard speed are finger-pointing and moving the head from side to side instead of moving the eyes. Pointing with the finger should sometimes be encouraged as an aid in overcoming reversal tendencies, but should be discontinued as soon as its usefulness for this purpose is outlived. As with lip movements, finger pointing and head movements usually require nothing more than an explanation of why they should be discontinued, followed by reminders from time to time.

Word by word reading can never be fast reading. It is typically slow and plodding, because the child pauses after each word. It is usually accompanied by lip movements and finger pointing, and, like them, is usually caused by too much stress on oral reading and phonetics. The methods described in Section III of this chapter for developing ability to read in thought units are effective for eliminating word by word reading, and build up speed at the same time that they improve comprehension.

The rate of reading of some children is satisfactory on material that requires careful reading, but much too slow on material that is easy enough to be read quickly. Some practice in learning how to skim in reading is often helpful in these cases. They can be started with easy tasks such as looking through two or three pages to find a name or a date. As they become familiar with the technique, they can be asked to hunt for the answers to more difficult

Instructions. In this experiment you are asked to read the following selection from Mark Twain's *Autobiography*, with the unimportant words omitted. Try to read right along, while your teacher keeps time, as though the words were there and you were giving them but a passing glance. See how near to your normal rate you can read. When your teacher says, "Begin!" and starts timing you, begin. Ready? *Look up at the teacher!*

AN INCIDENT OF MARK TWAIN'S BOYHOOD

In — schoolboy days I — no aversion — slavery. I — not aware — — — anything wrong — it. No one arraigned — — — hearing; — local papers — nothing against —; — local pulpit taught — — God approved —, — — — a holy thing, — that — doubter need — look — — Bible if — wished to settle — mind; — then — texts were read aloud so as — make — matter sure; if — slaves themselves — — aversion — slavery, — — wise — said nothing. — Hannibal we seldom saw — slave misused; — — farm, never.

There —, however, — small incident — — boyhood days — touched — matter, — — must have meant — good deal — — or — would not have stayed — — memory, clear — sharp, vivid — shadowless, all — slow-drifting years. We had — little slave boy there — Hannibal. — was from — eastern shore of Maryland — — — brought — from his family — — friends, halfway across — American continent, — sold. He — — cheery spirit, innocent — gentle, — — — noisiest creature — ever was, perhaps. All day long he — singing, whistling, yelling, whooping, laughing; it — maddening, devastating, unendurable. At

FIG. 32. A portion of an exercise intended to encourage paying attention to the important words of a selection, reproduced from McCall, Cook, and Norvell, *Experiments in Reading*, Book 1, by permission of Harcourt, Brace and Co.

questions. This practice in skimming should of course be used in addition to other devices for improving speed, not in place of them.

In planning a program for improving speed, one has to decide whether the basic approach will be one that stresses improvement of eye-movements, or one that relies

on motivated practice in reading quickly. Experimental evidence indicates that motivated practice produces as much improvement in rate of reading as programs of eye-movement training do, while it has a somewhat more favorable effect on comprehension.¹³ Another point of practical importance is the fact that motivated practice requires no special material, while eye movement drills necessitate the use of specially prepared material or expensive apparatus. There is no reason for the teacher who relies on motivated practice to feel that his method is inferior to the formal methods of training eye movements or the use of complex machines to pace the reader. Supplementary practice to overcome specific interfering habits should, of course, be employed in connection with either of the major methods for increasing speed.

IV. DEVELOPING ABILITY IN SPECIFIC KINDS OF COMPREHENSION

Reading comprehension is not a single ability, but is a complex end result of the development of a large number of rather specific skills. The underlying factors that have been treated so far in this and in the preceding chapter — word recognition, intelligence, meaningful vocabulary, reading in thought units, and appropriate rate of reading — are basic in all kinds of meaningful reading. In addition to these fundamental factors, a good reader must learn how to vary his reading according to the kind of material and the purpose for which he is reading.

Perhaps the major distinction to be made among the different kinds of comprehension is the one which contrasts recreational reading with work-type reading.

¹³ E. D. Sisson, *Eye-Movement Training as a Means of Improving Reading Ability*, *Journal of Educational Research*, vol. 32, 1938, 35-41. M. A. Tinker, *Eye Movements in Reading*, *Journal of Educational Research*, vol. 30, 1936, 241-277.

Naming Paragraphs

Read each paragraph. Then draw a line under the best name for it.

1. Most beavers live in lodges that are built in pools in small streams. The lodges are made of sticks and mud. Some of them are several feet high. A part of the beaver lodge always stands above the water, but the entrance is always covered by water.

- a. A Beaver Lodge
- b. How Beavers Cut Down Trees
- c. How High Are Beaver Lodges?

4. The camel stores food and water in the strangest way. The camel stores food in the two great humps on its back and water in its two stomachs. Many times on a journey, the travelers have no food or water for the camel. Then the camel lives on the food and water it has stored away for itself.

- a. How a Camel Travels
- b. The Camel's Hump
- c. How the Camel Stores Food and Water

FIG. 33. Sample of an exercise intended to develop ability to get the central thought of a paragraph, reproduced from Brueckner and Lewis, *Remedial Exercises in Reading*, by permission of John C. Winston Co. Reduced in size

Recreational reading involves reading stories for pleasure, or reading selections to appreciate humor or beauty of description. The important abilities called for are facility in getting the general idea of a selection, ability to follow a related sequence of events, and understanding of the motives and emotional reactions of the characters. Recreational reading does not ordinarily demand highly concentrated attention or careful noting of details or organization: Work-type reading, on the other hand, is similar in meaning to "studying." Included in the general concept are many different kinds of reading, such as discovering the main thought, finding the answers to specific questions, outlining and summarizing, following directions, etc.

Many useful types of comprehension exercises are available in published work-books, several of which have been described in Chapter VIII. Other useful sources of practice material in work-type reading are to be found in sets of readers which emphasize the development of study skills, such as the *Learn to Study Readers* by Horn and

Shields,¹⁴ or the *Reading to Learn* series by Yoakam, Bagley, and Knowlton.¹⁵ These published materials are frequently superior to similar exercises that can be devised by remedial teachers. When suitable published materials are not available or when the remedial teacher wants a larger number of exercises of one kind than can be found in published form, he can construct similar exercises for his own use. Some suggestions about kinds of practice questions and exercises that may be used to develop skill in specific kinds of reading comprehension now follow:

Reading to get the central thought

1. Have the child read a paragraph and tell what the main idea in it is.
2. Ask the child to suggest an appropriate title for a story or selection.
3. Have the child try to select the best of several suggested titles for a paragraph or whole selection.

Reading to follow a sequence of events

1. Ask the child to re-tell the story he has read.
2. Give the child a list of events in the story and ask him to arrange them in proper sequence.
3. Ask such questions as: "What did Billy do after he found the sick puppy?"
4. Present an unfinished story or stop the child before he finishes reading a story, and ask him to guess what will happen next.

Reading to note details

1. Use separate paragraphs each of which contains many details. Ask the child to reproduce orally the facts or ideas contained in the paragraph.
2. Use informational material; geographical material is very suitable. Present a selection about one page long, and follow it by a number of questions about specific points in the selection.
3. Give the child a list of specific questions before he reads the selection, and have him look up the answers.

¹⁴ Ginn and Company, Boston.

¹⁵ The Macmillan Company, New York.

4. Use questions on ordinary reading material which compel attention to relatively minor points, as: "What color was the ball that Joe played with?"

Reading to follow directions

1. Collect sets of directions for making or doing many different kinds of things from various sources, such as the *Boy Scout Handbook*, magazines dealing with mechanics and constructive activities, directions for experiments in science courses, etc. Have the child actually carry out the directions.
2. Use a set of directions and ask specific questions, such as: "How long and how wide should the base be?" "What do you do after placing the candle in the box?" etc.
3. Use problems from the pupil's textbooks and have him explain his solution step by step. Errors in reading are often the basic reasons for incorrect problem work.

Reading to discover cause and effect relationships

1. In narrative materials, ask such questions as: "How did Hawkeye feel when the Indians discovered the cave?" "Why did the gingerbread boy run away?" "What would have happened if the boat had hit a rock?"
2. In work-type materials, check on understanding by means of questions such as: "Why does a boat made of steel stay afloat?" "Why are steel mills often located near coal mines?" "Why were the revolutionary patriots angry about the stamp tax?"

At the beginning it is often advisable to present the questions orally and get oral answers. Written questions and written answers may be gradually introduced. The reasons for errors should be discussed with the pupil and he should re-read the material to correct his mistakes.

In addition to the more general reading skills, there is need, especially in the upper grades and secondary school, for providing pupils with training in specific study skills. The sloppy, incomplete, and disorganized notebooks kept by many intelligent students show that much can be done to improve the ability of students to prepare

summaries and outlines of what they read. Training in these skills can begin as low as the fourth grade, and should have a definite place in secondary school teaching. Guidance in the interpretation of maps, tables, charts, and graphs should also be provided.

The ability to analyze a reading selection, picking out the main points and the supporting ideas or facts under each major heading, is one of the most valuable study skills that a student can acquire. The first step is to give practice in locating the central idea of the whole selection. Next exercises in locating the main idea of a paragraph should be provided. The pupil's attention should be called to the significance of headings, marginal notes, and italicized statements. After the pupil has developed proficiency at finding the central idea, he should be given practice in selecting sub-headings. At the beginning it is often advisable to give some help by writing in the first sub-heading and telling the pupil how many there should be. The amount of help can be reduced as it becomes less necessary. Training in the making of formal outlines is desirable because it enforces careful analysis of the reading matter. After the technique has been mastered, the pupil can be shown how to take less formalized notes.

Many pupils ignore almost completely the graphic aids of various kinds that they find in their textbooks. The first task in overcoming this tendency is to convince the pupil of the importance of this kind of material and of the need for becoming proficient at interpreting it. The next step is to teach him how to locate the keys which give the interpretations of the symbols used. In maps, for instance, the pupil should be shown the significance of the line that indicates the scale of the map, and the brief explanations of the different shadings, colors, marks representing towns, cities, capitals, industrial centers, etc.

In graphs and charts he should be shown how to find the meaning of each of the dimensions and how to read the size of the different entries. The most useful practice materials are those to be found in the pupil's own textbooks. Questions designed to bring out errors in interpretations should be worked out in advance. When the pupil makes an error he should be asked to explain how he arrived at that answer as a means of getting at the basis for the error and correcting it. Practice exercises can be modeled after those contained in tests like the *Chicago Reading Tests* and the *Tyler-Kimber Study Skills Test*.

With the increasing importance that is being placed on independent reading and study, pupils need to know how to locate information on a given topic. The writer has found that even graduate students at the university level are often at a loss when required to find their own information on a special topic. Every student should be taught how to utilize the table of contents and index of a book, how to locate references in a library index and in such bibliographic sources as the *Reader's Guide*, and should be introduced to the use of such storehouses of information as encyclopedias and almanacs. This is not particularly a remedial problem, but rather a question of including skills which are often neglected in the course of study.

SUGGESTED ADDITIONAL READING

- Paul McKee, *Reading and Literature in the Elementary School*, Chs. VIII-XII (Houghton Mifflin Company, Boston, 1934).
 James M. McCallister, *Remedial and Corrective Instruction in Reading: A Program for the Upper Grades and High School*, Part III (D. Appleton-Century Company, New York, 1936).
 Clarence R. Stone, *Better Advanced Reading*, Ch. VII (Webster Publishing Company, St. Louis, 1937).
 Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Chs. III-VI (The Macmillan Company, New York, 1935).

Paul Klapper, *Teaching English in Elementary and Junior High Schools*, Ch. XI (D. Appleton-Century Company, New York, 1925).

David H. Russell, Etta E. Karp and Edward I. Kelly, *Reading Aids Through the Grades*, Chs. III and IV (Bureau of Publications, Teachers College, Columbia University, 1938).

Luella Cole, *The Improvement of Reading*, Chs. V-XII (Farrar and Rinehart, Inc., New York, 1938).

CHAPTER XI

TEACHING READING TO SPECIALLY HANDICAPPED CHILDREN

There are many children whose difficulties in learning to read are simply one phase of a more general handicap. Reading instruction for them must be considered in relation to their whole educational program. Among the specially handicapped groups are found the mentally retarded, children with a foreign language background, children with visual, hearing or speech defects, and children with special health problems. This chapter will take up for consideration the reading needs of the groups just mentioned.

I. READING INSTRUCTION FOR THE MENTALLY RETARDED

Children whose I.Q.s are between 90 and 110 are generally considered to have average intelligence. Those whose I.Q.s fall below 90 are classified as dull, borderline, or feeble-minded, depending on the extent of their mental retardation. They include about twenty per cent of the elementary school population, and contribute much more than their proportional share to the difficulties which beset teachers. At the present time most school systems provide special classes or ungraded classes for the definitely feeble-minded. In many school systems the dull children at each grade level are also grouped together in separate classes. The problems involved in deciding what to teach these children and how to teach them are vitally important.

Readiness for Reading in Mentally Retarded Children

The fact that mentally retarded pupils are not ready for reading at the same age as normal children has been pointed out in Chapter III. Nevertheless in many school systems they are placed in the same first grade classes as other children, and only when they have demonstrated a total inability to make progress are they discovered to be mentally retarded. Such a procedure is destructive to the morale of the dull child and produces a tremendous waste of time and energy of teachers, with little appreciable return. The use of appropriate reading readiness and intelligence tests at the beginning of the child's school career makes it possible to avoid these bad effects.

Writers on the education of the mentally retarded are in close agreement that it is futile to start such children on a systematic reading program before they reach a mental age of six years. A report of a special conference of thirteen specialists in the education of the mentally retarded has recommended that feeble-minded children with mental ages under six should not be taught reading, writing, or arithmetic. Instead they should be given a program which emphasizes motor and sensory training, personal hygiene and habit training, the improvement of speech, emotional control, rhythm, drawing, and simple manual activities.¹ Whipple has gone even farther in saying that "It is very doubtful whether satisfactory results will be obtained from attempting to teach reading to a subnormal child whose mental age is under six and a half or seven years."²

¹ *A Guide to Curriculum Adjustment for Mentally Retarded Children*. U. S. Office of Education, Bulletin, 1936, No. 11, p. 23 (U. S. Government Printing Office, Washington, D. C.).

² H. D. Whipple, *Making Citizens of the Mentally Limited*, p. 83 (Public School Publishing Company, Bloomington, 1927).

The ages at which mentally slow children reach mental ages of six and six and a half are indicated in Table IV. Inspection of the first column in Table IV shows that if one is to wait until a mental age of six is reached, one has to delay reading instruction for all mentally retarded children. On this basis children with I.Q.s between 80 and 90 are ready to start reading between the ages of six and a half and seven and a half; those with I.Q.s between 70 and 80 between seven and a half and eight and a half; and the feeble-minded, still later. If a mental age of six and a half is chosen as a desirable minimum, the age of attaining readiness for reading is proportionally higher as shown in the second column of Table IV.

TABLE IV. AGE OF ATTAINING READING READINESS AND EXPECTED LEVEL OF MENTAL MATURITY FOR MENTALLY RETARDED CHILDREN

I.Q.	<i>Age at Which the Child Reaches a Mental Age of</i>		<i>Mental Level Expected at the Age of Fourteen Years</i>	
	6-0	6-6	<i>Mental Age</i>	<i>Mental Grade</i>
90	6-5	7-3	12-7	7.0
85	7-1	7-8	11-10	6.3
80	7-6	8-2	11-2	5.7
75	8-0	8-8	10-6	5.1
70	8-7	9-4	9-10	4.6
65	9-3	10-0	9-1	3.8
60	10-0	10-10	8-5	3.2
55	10-10	11-9	7-8	2.5
50	12-0	13-0	7-0	1.8

It has been demonstrated that normal five year olds can make satisfactory progress in reading under some forms of instruction, and that with patient individual instruction the ability to recognize a few words can be

acquired even by dull children with mental ages between four and five.³ In view of these results, there seems to be some warrant for introducing dull children to the beginnings of reading before they reach a mental age of six or six and a half. Children with mental ages between five and six may be expected to make some progress in word recognition, even if truly meaningful reading is beyond them. They can at least learn to recognize their names and a few common signs and labels. Systematic reading instruction, however, should be delayed until the necessary level of mental maturity has been reached. Until then, emphasis should be placed on the development of readiness for reading. The major points of a reading readiness program have been discussed in Chapter III.

General Objectives and Methods with the Mentally Retarded.

Before considering specific procedures for teaching reading to dull and feeble-minded children, it is necessary first to inquire into the more general question of what their schooling is expected to accomplish. The basic philosophy of their education is, like that for normal children, aimed at teaching them to make the best use of their capacities and to become useful members of a social group. In order to accomplish these general goals it is necessary to provide for wholesome social experiences, to train for some participation in productive work, and to plan teaching procedures and objectives to correspond with the capacities, limitations, and interests of the children.

Such goals cannot be achieved simply by giving these

³ H. P. Davidson, An Experimental Study of Bright, Average, and Dull Children at the Four-Year Mental Level, *Genetic Psychology Monographs*, vol. 9, Nos. 3, 4, 1931. See also the discussion on pages 49-52 in this book.

children a conventional school program, slowed down and reduced to bare minimum essentials. Most recent writers on this subject emphasize the necessity of providing the retarded child with vital and meaningful experiences.⁴ Their general point of view is well expressed in the following quotation :

Indeed, the very foundation upon which special classes for mentally retarded children have been built has involved recognition of the need for greater freedom in self-expressing activities on the part of the child and of the group of children. If the child of limited mentality is to become an adult who lives in his community with some measure of self-reliance and self-respect, then he must be given every opportunity for continuous practice of those qualities during his formative years. The group activity, in which each child may express some power of initiative, carry some responsibility of performance, and have some part in judging the merits of the outcome, offers a medium for such practice that the traditional recitation method of teaching reading, writing and arithmetic could not approach. Yet the possibilities of such a program are by no means universally recognized nor its principles universally accepted. There are still many teachers of retarded children in special classes who think that they are making an adequate adjustment of the curriculum when they reduce academic work to its minimum essentials and allot a considerable portion of the day's program to manual work of one kind or another. They still carry on a program in which each subject fits into its own compartment. They realize and let the children realize none of the joy that comes from tying together into one major activity all the elements which help to develop the skills and habits and attitudes that they are trying to teach.⁵

⁴ See, for instance, the following :

W. B. Featherstone, *The Curriculum of the Special Class*, Contributions to Education, No. 544 (Bureau of Publications, Teachers College, Columbia University, New York, 1932).

P. A. Witty, *Special Class Curricula for the Retarded*, *Illinois Teacher*, vol. 24, 1936, 132-134, 158.

⁵ *Group Activities for Mentally Retarded Children : A Symposium*, U. S. Office of Education, Bulletin, 1933, No. 7, p. 1 (U. S. Government Printing Office, Washington, D. C.). Quoted by permission.

Descriptions of successful activity units for retarded children can be found in several sources.⁶ It is generally recognized that more specific planning, direction, and assistance by the teacher is necessary in activity work with retarded children than with normal children. Special practice and drill on those phases of academic subjects such as reading and arithmetic that are considered necessary, must also be provided. Featherstone⁷ has described a modified activity program that has been developed in an experimental school for dull-normal children. There are two phases to the program: (1) a series of fairly comprehensive units or activities, each lasting several weeks; and (2) a series of "lessons" for direct teaching of reading, writing, and arithmetic by highly individualized methods. The teachers in this school have the great advantage of using units and lessons that have been worked out in considerable detail by research workers associated with the school. Unless a teacher of retarded children has some such assistance, the planning of an activity program that will also provide necessary training in basic skills may make great demands on his time and energy.

Reading Objectives and Methods for Mentally Retarded Children

Decisions as to what mentally retarded children should be taught should be based on a realistic understanding of what they can learn. Low intelligence places definite limitations on a child's ability to read with understanding. At the present time there is no reason to hope that even the most effective teaching in school can compen-

⁶ C. Ingram, *Education of the Slow-Learning Child* (World Book Company, Yonkers, 1935).

Y. Adlerblum, A Demonstration Class for Dull Children, *Educational Method*, vol. 14, 1934, 23-30.

See also references in footnotes 1 and 5 above.

⁷ W. B. Featherstone, The Speyer School for "Slow-Reading" Children, *Teachers College Record*, vol. 38, 1937, 365-380.

sate for mental dullness. Getting the dull child to read at the level indicated by his mental age is itself a difficult task.

An idea of what can be expected of mentally retarded children in reading can be gained from the third and fourth columns in Table IV. For each I.Q. between 50 and 90 the table indicates the mental age and mental grade that the retarded child will probably have when he is fourteen years old. The mental ages were obtained by multiplying each I.Q. by 14. The corresponding mental grades were obtained from Table III, on page 133. Since level of reading comprehension is limited by level of mental ability, these figures can be interpreted as showing the levels of reading ability that can be expected by the age of fourteen under effective teaching.

Children with I.Q.s between 80 and 90, generally described as dull or dull normal, are doing well if they can do sixth grade work by the age of fourteen. The borderline group, with I.Q.s between 70 and 80, are achieving up to their capacities when they reach the level of high fourth or fifth grade. The feeble-minded are still lower. The morons with I.Q.s between 60 and 70 are usually stopped by material of third or fourth grade difficulty, and those with I.Q.s between 50 and 60 usually cannot progress beyond second grade work; many of them fail to learn to read at all. Imbeciles and idiots, whose I.Q.s fall below 50, are nearly always hopeless so far as reading is concerned.

The dull child can learn what normal children learn, but at a slower rate. This applies at least to the work of the grades for which he eventually develops the necessary level of mental capacity. His teaching should be characterized by a slower rate of introduction of new material and a greater amount of repetition than is necessary for average pupils. A wealth of illustrative mate-

rial and concrete experience should be employed, since the dull child experiences difficulty in abstract, verbalized learning. Relationships which the average child sees without help have to be explained to dull children. Emphasis should be placed on the practical applications of what they learn, and the course of study for them should be constructed with a view to their practical needs in later life.

Much of what normal children learn is beyond the grasp of the feeble-minded. Their understanding will always be limited to things which are concrete and specific. In view of their slow rate of learning, the amount they can be taught in school is limited, and therefore the course of study should be carefully selected to emphasize facts, skills and habits that will help them to make an adequate adjustment outside of school.

Writers on the subject of teaching feeble-minded children emphasize the practical nature of the teaching that should be offered. According to Ingram:⁸ "The slow child must be given specific help in interpreting what he reads. He must be definitely taught how to read signs and directions; how to find information in newspapers, in bulletins, in a directory, or a magazine; how to read letters, and how to read for pleasure." Whipple⁹ has a similar point of view. She suggests, as major items in the reading course for feeble-minded children, seven types of material: (1) common signs, of which she lists one hundred and fifty; (2) labels, especially of foods and medicines; (3) advertisements and notices; (4) location of informational items in telephone books, catalogues, and time tables; (5) instructions of various kinds; (6) news items, especially the weather reports, sports, and

⁸ C. Ingram, *Education for the Slow-Learning Child*, p. 65 (World Book Company, Yonkers, 1935).

⁹ H. D. Whipple, *Making Citizens of the Mentally Limited*, p. 89 (Public School Publishing Company, Bloomington, 1927).

headline news; and (7) letters that are sent to them.

The emphasis on items of practical value just indicated is clearly grounded in common sense. All too often the attempt has been made to teach exactly the same things to the feeble-minded as to the normal, with the result that they have not learned many things that are essential to their welfare.

Mentally retarded children find it easier to learn the mechanics of reading than to improve their comprehension. They are often relatively better at oral than at silent reading, and frequently become word-by-word readers. Their reading deficiencies show up most clearly in tests of level of comprehension in silent reading. The principles involved in developing comprehension that have been discussed in Chapter X—vocabulary building, wide reading of easy, interesting materials, training in how to read thought units, and practice in answering varied kinds of questions on reading matter—are just as important in teaching the slow child as they are for other children. In general, the dull child's reading should be more carefully supervised than that of normal children.

A whole-word method rather than a phonetic method should be employed in teaching word recognition to mentally retarded children. As Baker has said, "Phonetic methods imply the ability to generalize upon words and build up many complicated associations. While this type of teaching may produce effective results for bright pupils, the benefits for dull pupils are very doubtful. Dull pupils are not able to make the necessary associations, so that phonetics becomes for them a confusing and extraneous element."¹⁰ This is generally true, although a certain amount of phonetic instruction may be helpful

¹⁰ H. J. Baker, *Characteristic Differences in Bright and Dull Pupils*, p. 45 (Public School Publishing Company, Bloomington, 1927).

to older mentally retarded children who have mental ages above seven.

Motivation is an important problem in teaching reading to the mentally retarded, since most of them dislike reading. This antipathy is due mainly to two things. The first is the fact that at present most dull children are started on reading before they are really ready for it, and held up to standards which are unreasonably high for them. The second is the difficulty that exists at present in finding material which is easy enough for them and at the same time meets their interests, which are usually similar to those of average children of the same age. Short attention span and distractibility must also be taken into account. Reading lessons should be fairly short and varied in nature. Extrinsic and artificial forms of stimulation must be used to a considerable extent, since these children cannot keep a remote goal strongly in mind. Praise should be used quite lavishly, and little prizes of various kinds help to sustain interest that otherwise would flag.¹¹

Remedial Instruction for Mentally Retarded Readers

The importance of distinguishing between dull children who are reading as well as can be expected and children who are really disabled readers has been emphasized several times in this book. When asked to select one or two children from a class for remedial instruction, many teachers nominate their poorest readers without regard to their intelligence. In this way children of average or superior intelligence whose reading ability is far below expectancy tend to be neglected. The dull child whose reading ability is up to his mental age will not profit much from remedial instruction. For this reason it is

¹¹ C. Meier, Effect of Prizes in Increasing the Word Learning of Subnormal Children, *Training School Bulletin*, vol. 32, 1935, 146-157.

always advisable to give intelligence and reading tests to children before referring them for remedial teaching.

Nevertheless there are some dull and even feeble-minded children who are also reading disability cases. Hegge¹² has suggested that a feeble-minded child is a suitable candidate for individualized remedial instruction in reading when he meets the following requirements: (1) his I.Q. should be at least 60; (2) he should be less than 14 or 15 years old; (3) his reading ability should be below fourth grade level; (4) his reading age should be at least two years below his mental age; and (5) his reading ability should be at least one grade lower than his ability in arithmetical computation. Feeble-minded boys selected on this basis have made an average gain of a year and two months in reading after five months of remedial teaching, according to Kirk.¹³ This is a satisfactory amount of improvement, and demonstrates that individualized remedial work produces definite returns in properly selected feeble-minded cases.

In the opinion of the present writer, the strict standards set up by Hegge do not have to be followed rigorously. Any child, whether mentally average or feeble-minded, is a suitable candidate for remedial teaching when his reading age is definitely below his mental age. However, if cases are selected on a less rigorous basis than that suggested by Hegge, one would naturally expect a smaller average improvement.

Remedial work with feeble-minded children need not differ in any important respect from similar work done with mentally normal children. Much attention has to be given to the teaching of word recognition techniques,

¹² T. Hegge, Special Reading Disability with Particular Reference to the Mentally Deficient, *Proceedings of the American Association for Mental Deficiency*, vol. 39, 1934, 297-340.

¹³ S. A. Kirk, The Effects of Remedial Reading on the Educational Progress and Personality Adjustment of High-Grade Mentally Deficient Problem Children, *Journal of Juvenile Research*, vol. 18, 1934, 140-162.

since most of the feeble-minded children that will be selected for individualized attention will be practically non-readers. They can learn by whole-word, kinaesthetic, or phonetic methods, although a combination of the latter two approaches seems advisable in general because most of them have already failed to progress under a whole-word method. After a good basis in word recognition has been acquired, emphasis should be shifted to the development of vocabulary and comprehension. The Hegge-Kirk remedial program, using a special workbook and designed primarily for use with feeble-minded boys, has been described in Chapter IX.¹⁴

II. TEACHING READING TO CHILDREN WITH POOR LANGUAGE BACKGROUND

With the exception of the deaf, the children who are most severely handicapped by deficiency in their knowledge of English are those who come from homes in which some other language is spoken. Sometimes they enter school with little or no knowledge of English. They naturally find it practically impossible to learn to read a language that they can hardly understand. Many times the teacher regards these children as dull. They may, of course, be really dull, but much of their apparent stupidity is due to their language handicap.

It is difficult to make a fair estimate of the intelligence of language handicapped children because of the importance of language comprehension in determining scores on intelligence tests. This is true even in regard to some of the tests which do not involve reading. A very inter-

¹⁴ See also:

T. G. Hegge and L. B. Ward, Remedial Reading Methods, *American Journal of Orthopsychiatry*, vol. 6, 1936, 421-430.

S. A. Kirk, The Influence of Manual Tracing on the Learning of New Words, in the Case of Subnormal Boys, *Journal of Educational Psychology*, vol. 24, 1933, 525-535.

esting experiment on this point has been performed by Mitchell, in which he attempted to determine the effect of foreign language background on tested intelligence.¹⁵ He used the *Otis Group Intelligence Scale, Primary Examination*, a test in which the directions are given orally and are answered by marking pictures, and gave it to 236 Mexican children in the first three grades of public schools in Arizona. One form of the test was given with the usual directions in English, and the other form was given with Spanish directions. On the form with Spanish directions the pupils made an average I.Q. of 96.2, while their average I.Q. on the English form was only 86.9. The difference was smallest in the first grade, and amounted to nearly 14 points in the third grade. This experiment demonstrates clearly the disadvantages under which language handicapped children labor in school.

The reading difficulties of children who come from foreign language homes are the direct result of their deficiencies in understanding and speaking English. It seems obvious that the most satisfactory way to start improving their reading is to improve their knowledge of English. In learning a native language, children learn to speak it before they are expected to learn to read it, and there is no reason why a different procedure should be followed in learning a second language.¹⁶ There is also a great necessity to give the foreign language speaking child a background of meaningful ideas, since he has necessarily missed many of the common experiences of English speaking children.¹⁷ Children whose mastery of English is limited need a preparatory instructional period devoted to the building up of a basic speaking vocabulary

¹⁵ A. J. Mitchell, *The Effect of Bilingualism in the Measurement of Intelligence*, *Elementary School Journal*, vol. 38, 1937, 29-37.

¹⁶ A. G. Bovee, *Needed: A Linguistic Locarno*, *Education*, vol. 55, 1934, 52-55.

¹⁷ A. Wallace, *Teaching Reading to Foreign Children*, *Educational Method*, vol. 10, 1931, 363-367.

and common meaningful experiences before they are introduced to reading.¹⁸

One of the writer's students was confronted with the problem of teaching a group of children all of whom came from foreign language homes, and who spoke practically no English outside of school. They had been exposed to conventional reading instruction in the first term of the first grade and then entered her 1B classroom. She found that they were almost completely uncontaminated by their previous term's exposure to reading. Realizing that the children could hardly be expected to read a language that they could not speak properly, she decided to build up their knowledge of English and to delay reading until they could understand and speak English with greater facility. An account of her procedure in her own words is here reproduced :

The children began by learning those things that would help them to get along in a social group, such as : "May I please have —," "I do not have a —," "Thank you," "You are welcome," "Excuse me," "Please," etc. Saying these phrases and hearing them repeated with slight variation by the rest of the class gave them a more rounded feeling of the meaning. It was important to show them that the English language is flexible and that the same sentence, phrase or word can be used in a variety of ways (e.g., Where is Edward, where do you live, where is my pencil, where may I sit, etc.). Everything was taught in a highly dramatic way. It was necessary that the language lessons be very active and lively. Everything in the room was labeled. Objects were classified on charts (animals, clothing, flowers, etc.). The class gradually began to learn those phrases and words that would be used in their reading later on. Vocabulary was built slowly and gradually. To illustrate, let us study the

¹⁸ G. I. Sanchez, The Implications of a Basal Vocabulary on the Measurement of the Abilities of Bilingual Children, *Journal of Social Psychology*, vol. 5, 1934, 395-402.

F. F. Powers and M. Hetzler, *Successful Methods of Teaching English to Bilingual Children in Seattle Public Schools*, Office of Education, Pamphlet, 1937, No. 76 (U. S. Government Printing Office, Washington, D. C.).

word "see." After learning the meaning of this word, they learned, "I see," then "He sees," "She sees," "Edward sees," etc. From that they proceeded to "see" objects, persons, places, etc. Many of these little stories were written on the board, though to read them was not imperative nor forced. Since repetition is very important it was imperative that every question I asked them should be answered in a complete sentence, using as many of the words I used as was possible (i. e., Question: "Mary, have you a pencil?" Answer: "Yes, Miss X, I have a pencil"; Question: "Edward, can you write your name now?" Answer: "Yes, Miss X, I can write my name now.").

The class played preposition games, verb, adjective and adverb games that the children found very funny and instructive. No motion was wasted in the classroom. Rather than walk in the conventional way to the wardrobe for clothing, one row would walk *sadly* to the wardrobe, another would walk *quickly* or *softly*, etc. In addition to acting these words it was most important that they repeat vocally everything they acted.

As a further departure from conventional classroom procedure, the class was encouraged to repeat softly to themselves everything that I said. If I said, "Class stand," they repeated and suited the action to the words. Hearing me say it, repeating it, hearing themselves say it and then doing it, helped to fasten these sentences, words, or phrases in their minds. This sort of activity continued right through the term. Reading was begun formally at the beginning of the sixth week.

The general principles that should be followed in teaching language handicapped children are vividly portrayed in the above account. Stated briefly, these principles are: (1) introduce new words and expressions in a planned sequence; (2) provide a good model for imitation; (3) give practice in the use of newly acquired expressions in all classroom activities; and (4) develop high motivation through the use of games, dramatization, and a variety of interesting activities.

If the needs of these children are met and provided for

early in their school careers, they need not become reading disability cases. Their meagre language background will, of course, continue to handicap them as long as it persists. They are at a natural disadvantage as compared with children who come from cultured, English speaking homes. They need a rich language program throughout their elementary school years. They can learn to read as other children do when they have acquired the necessary mastery of spoken English.

Not all cases of foreign language handicap are so noticeable as to be immediately apparent in the child's speech. In a great many cases the child's ability to join in ordinary conversation is good enough so that the teacher does not suspect his weak background in language. When the child displays a scanty vocabulary and an inability to comprehend involved constructions in reading, the teacher is apt to ascribe his weakness to dullness rather than to his lack of an adequate language background. Recognition of the true cause of their backwardness in reading and language work should naturally bring about increased efforts to provide such children with rich and varied language experiences.

III. TEACHING READING TO CHILDREN WITH VISUAL, HEARING, OR SPEECH DEFECTS

Visual Defects

Most children who have moderately defective vision do not need special consideration in their school instruction. Once their defects have been remedied by properly fitted glasses, they should have no more difficulty in learning to read than children with normal vision do. The important need in their cases is to provide adequate

visual examinations as soon as they enter school and to make sure that all those whose eyes need attention are given the necessary care.¹⁹ Periodic re-checks on vision should be uniformly provided in the schools, since many children develop eye defects during their school careers.

A small proportion of children, estimated at about one in five hundred, have visual defects sufficiently severe to make special care advisable. The totally blind, of course, should be cared for in special schools or special classes where they can be taught to read by the Braille method. Besides these, there are many children with severe visual deficiencies who should be placed in sight-saving classes. These children include the following groups: (1) children whose vision is between 20/70 and 20/200 in the better eye after correction; (2) children with progressive myopia; (3) children with diseases of the eye that cause irritation; and (4) any other children who need sight-saving programs in the opinion of competent oculists.²⁰

In sight-saving classes every attempt is made to reduce the amount of strain that ordinary school work places on the eyes. Books specially printed in large, clear type are employed, special pencils and pens are employed to produce thick, black lines, and lighting conditions are carefully regulated.²¹ As much of the work as possible is done orally, and reading activities are intentionally kept at a minimum.

Retarded readers who need glasses for adequate vision have a tendency to break or lose their glasses, and often a long period goes by before they are replaced. Since

¹⁹ Methods of measuring vision have been discussed in Chapter VI, pages 144-147.

²⁰ B. McLeod, *Teachers' Problems with Exceptional Children. I. Blind and Partially Seeing Children*. Office of Education, Pamphlet, 1933, No. 40 (U. S. Government Printing Office, Washington, D. C.).

²¹ See footnote 20 above. Books in large type can be obtained from the Clear Type Publishing Co., 36 Elston Road, Upper Montclair, New Jersey.

being unable to see well is a legitimate reason for poor performance, it is highly probable that in some of these cases the disappearance of the glasses is not an accident. Another difficulty that remedial teachers have to cope with is the unwillingness of some parents to bother to take a child to an eye clinic or to order glasses. The combination of these two troubles is sometimes heart-breaking. One of the writer's students succeeded after three months in getting glasses for a child—and they were broken within a week. One has to persevere in spite of such difficulties.

Hearing Defects

A distinction should be drawn between deaf children and children who are hard of hearing. The first group consists of those whose auditory defect is severe and has been present since birth or before language and speech were established. The hard of hearing children are those whose defects occurred after they had learned to speak and understand speech, and so have a normal attitude toward the world of sound.²² The distinction is not based on the severity of the defect but on the acquisition or failure to acquire a language background before hearing was lost. "Deaf-mutes" or children who are deaf and dumb are those who have failed to acquire speech because they lost their hearing before the age at which children generally learn to speak.

With auditory as with visual defects, the first essential is an adequate testing program. The most satisfactory tests are those performed with audiometers. It is estimated that nearly a third of a million children in this country have hearing defects sufficiently severe to war-

²² White House Conference on Child Health and Protection. *Special Education: The Handicapped and the Gifted* (D. Appleton-Century Company, New York, 1931).

rant special educational attention.²³ Many of the severe defects can be prevented by early diagnosis and medical treatment.

Children with relatively mild hearing defects can adjust to a normal classroom situation with only a little help. They should of course be placed in a seat at the front of the room. Clear enunciation on the part of the teacher, which is desirable in all classes, is especially necessary. If the child shows difficulty in discriminating between and pronouncing certain sounds, he should be given special help on these sounds outside of class. Liberal use should be made of visual teaching aids, and in the teaching of reading as much emphasis as possible should be placed on visual analysis rather than on phonetics. Partly deaf children are under a considerable handicap in classes where oral reading and phonetics are stressed, but are able to make normal progress in classes which emphasize silent reading and a visual approach.²⁴

The hard of hearing child needs help in following oral work in the classroom. The major method now used is the teaching of lip-reading. Most school systems now provide special instruction in lip-reading for children in this category. Once a child has mastered the technique of understanding speech by watching the speaker's lip and mouth movements, he can then take part in normal class work with little or no difficulty.

Teaching reading to children who are deaf and dumb presents a great many problems. These children have never developed language concepts, and so words as such do not mean anything to them. Gates developed a program for teaching reading to deaf children which depends entirely on visual teaching materials. Words were in-

²³ B. McLeod, *Teachers' Problems with Exceptional Children, IV. Deaf and Hard-of-Hearing Children*. Office of Education, Pamphlet, 1934, No. 54 (U. S. Government Printing Office, Washington, D. C.).

²⁴ See discussion of this point on page 147.

roduced through dramatized actions and through extensive use of the picture-dictionary idea. An extensive set of special mimeographed materials was constructed by means of which the children were gradually introduced to sentence and paragraph reading. At the end of one year of instruction the group taught by this method was equal in ability to normal pupils at the end of the first grade, while an equivalent group taught by conventional deaf-school methods was far behind.²⁵ There seems to be no reason why deaf children cannot be taught to read normally, provided that special care is taken to make use of their abilities and to minimize their defects.

Speech Defects

Speech correction is a complicated field in itself, and cannot be treated with any approach to adequacy in a small portion of a book on remedial reading. There are many kinds of speech defects, and they are produced by a great many different causes. Some are caused by defective formations of the speech organs, such as a cleft palate or deformed jaw. Stuttering is generally considered to be a complex type of neurotic habit. Defective production of speech sounds may be a result of neurological injury, foreign language background, persistence of infantile speech habits, or defective hearing. Attempts to correct serious speech defects should be made only by persons with special training in this field.

However, defects of pronunciation that are due to the persistence of immature speech habits, the interference of foreign methods of pronunciation, or faulty hearing, can be corrected by a teacher with some knowledge of how speech sounds are produced. Such deficiencies are fairly

²⁵ A. I. Gates, *The Improvement of Reading*, Revised Edition, pp. 410-431 (The Macmillan Company, New York, 1935).

common in poor readers, and are often associated with poor work in word recognition. Directions on how to produce and teach speech sounds can be found in most books on speech correction.²⁶

When a child has a speech defect it often makes him self-conscious about joining in oral work. There are few things more disconcerting than hearing snickers all around the room when one is talking. If a child with defective speech asks to be excused from oral work there is no advantage in insisting that he participate in it. If one does insist the child is apt to become embarrassed and his emotional state aggravates his speech faults. He may sometimes become so panic-stricken that he cannot utter a sound.

In choosing remedial methods for improving the reading of children with serious speech defects, oral reading and phonetic study should be minimized at the beginning. Emphasis should be placed on a visual approach to word recognition and on silent reading. At the same time corrective speech work should be carried on by a speech teacher. The remedial work in speech will include training in sound production, exercises to develop smoother and more fluent speech, and various procedures designed to give the pupil greater confidence. Oral reading is commonly used as a remedial speech procedure. At the beginning the pupil should read orally only selections that have been carefully prepared, and those only to the teacher in private. As the child overcomes his

²⁶ Ida M. Case and Sarah T. Barrows, *Speech Drills in the Form of Play* (The Expression Co., Boston, 1929).

J. S. Greene and E. J. Wells, *The Cause and Cure of Speech Disorders*, pp. 223-316 (The Macmillan Company, New York, 1927).

Letitia Raubicheck, *Improving Your Speech* (Noble and Noble, N. Y., 1935).

Sara N. Stinchfield and Edna H. Young, *Children with Delayed or Defective Speech* (Stanford University Press, Stanford University, Calif., 1938).

Edwin B. Twitmeyer and Yale S. Nathanson, *Correction of Defective Speech* (P. Blakiston's Son and Co., Inc., Philadelphia, 1932).

speech faults he will develop a desire to take part in the oral work of the class. He should be given every encouragement to do this, but should not be forced.

IV. TEACHING READING TO THOSE WITH PHYSICAL HANDICAPS

Children with lowered vitality often lack the physical energy to be able to apply themselves effectively to school tasks. Their physical weakness makes it difficult for them to concentrate their attention on anything that demands close application. The health conditions which most frequently result in generally lowered vitality are tuberculosis, malnutrition, and organic heart disease. These conditions all require the supervision of a competent physician. In an average group of one hundred children, one probably has heart trouble, one or two have active tuberculosis, and ten or more are definitely malnourished.²⁷ These children need special attention in school to conserve their strength. More rest and less activity are general recommendations for all children whose vitality is low. Richardson²⁸ has reported on a program designed to build up malnourished children. They were placed in a special class. They were given special diets, and much attention and motivation was devoted to building up their weight. Since the range of age and intelligence in the class was wide, the instruction was largely individual. They attended school for only three hours each day, as it was felt that a full school day would be too fatiguing. In spite of their curtailed program of study these children made normal progress in their studies. Children who have health handicaps are

²⁷ B. McLeod, *Teachers' Problems with Exceptional Children. VI. Children of Lowered Vitality*. Office of Education, Pamphlet, 1934, No. 56 (U. S. Government Printing Office, Washington, D. C.).

²⁸ F. H. Richardson, *Rebuilding the Child; A Study in Malnutrition* (G. P. Putnam's Sons, New York, 1927).

not necessarily poor readers. When they fall behind in their work it is largely because of absence or because they have not the necessary strength.

The different kinds of handicaps discussed in this chapter are not specific causes of reading disability, but tend to interfere with normal progress in reading in proportion as they prevent a child from taking part in normal classroom work. The work of these children in reading should be considered in relation to their general educational needs rather than as an isolated problem. There is a growing literature in this field with which every teacher of handicapped children should become familiar.²⁹ For those interested in teaching the handicapped this chapter can serve as nothing more than an introduction.

SUGGESTED ADDITIONAL READING

Christine Ingram, *Education of the Slow-Learning Child* (World Book Company, Yonkers, 1935).

Arthur I. Gates, *The Improvement of Reading*, Revised Edition, Ch. XIII (The Macmillan Company, New York, 1935).

White House Conference, *Special Education: The Handicapped and the Gifted* (D. Appleton-Century Company, New York, 1931).

²⁹ Lists of classified references on the education of the handicapped include:

E. H. Martens and F. E. Reynolds. *An Annotated Bibliography on the Education and Psychology of Exceptional Children*, Office of Education, Pamphlet, 1937, No. 71 (U. S. Government Printing Office, Washington, D. C.).

C. V. Good, Summary of Studies Relating to Exceptional Children, *Journal of Exceptional Children*, extra issue, 1938.

Annual summary and annotated reference list on exceptional children in the *Elementary School Journal*.

CHAPTER XII

ORGANIZING THE SCHOOL FOR BETTER READING

A major part of the responsibility for the effectiveness of reading instruction in a school lies with the administrators and supervisors—the superintendents and principals—who direct and guide the work of the teachers. They are the ones who set the goals for the school and who determine the main objectives which the teachers are expected to attain. They are responsible for the classification of pupils and for the selection and purchase of teaching materials. Their decisions make it easy or difficult for the teachers to do good work. The specific methods by which the teacher of reading can apply remedial principles in his classroom will be discussed in Chapter XIII. The present chapter deals with the contributions that supervision and administration can make to the improvement of reading instruction.

I. EVALUATING READING INSTRUCTION IN A SCHOOL

Before one can intelligently make suggestions and recommendations for changing the reading instruction in a school, it is necessary to find out what the past procedures have accomplished. As many school surveys have shown, it is not wise to trust entirely to a general impression or to the opinions of teachers in evaluating instruction. The use of standardized tests discloses facts about the achievement of pupils that would not be known otherwise.

As an example of the usefulness of testing as a means of discovering important facts about pupil achievement

in reading, the results of a reading survey in one school will be presented in detail.¹ The school in which this survey was conducted is a large metropolitan elementary school which at the time of the survey (February, 1938) had nearly 1500 children in the first six grades. The children came mainly from middle-class homes, and had an average I.Q. of approximately 100. There were from two to six classes at each grade level, and the pupils in each grade were divided into classes on the basis of intelligence test scores. The teachers were judged by the principal to be quite competent on the whole, although somewhat old-fashioned in their methods. Two years before, a city-wide survey with the *New Stanford Reading Test* had shown this school to be a little above average in reading ability. Nevertheless the principal felt that considerable improvement in the teaching of reading was possible, and decided to carry through a testing program in every class as a first step toward the improvement of instruction.

For this survey, the *Gates Primary Reading Tests* were selected for the first two grades, and the *Gates Silent Reading Tests* for grades three through six. A week before the tests were to be given, each teacher was given a copy of the manual of directions for the tests. A three-page set of mimeographed instructions was also distributed. Much of the success of the survey was due to the clearness of the instructions and the care taken to try to answer beforehand the many questions which would occur to teachers who were unused to giving standardized tests. Two days after these instructions were distributed, a meeting of all the teachers of the school was held at which the principal went over the instructions and cleared up any remaining doubtful

¹ The writer wishes to express his gratitude to the principal, who prefers to remain anonymous, for permission to reproduce these materials.

points. The tests were given on the first three days of the following week. Two weeks were allowed the teachers for scoring, tabulating, and turning in the results. The principal then carefully brought together the results of all classes in tabular form and had them mimeographed. The results for grades 3A-6B are reproduced in Table V and those for grades 1B-2B in Table VI. A circular containing an interpretation of the results was also mimeographed and distributed to the teachers. The bearing of the results on instructional procedures in the school was then discussed in a general staff conference and in separate conferences with the teachers in each grade. A digest of these interpretations and recommendations follows.

The school as a whole was found to be 1.3 months above the national norms. Grades 5B, 3A, 2B, and 2A were nearly a full term above the norms. The poorest performance was in grade 6A, which also had the largest class registers. The range or spread of the scores was enormous, with an average range of $5\frac{1}{2}$ years per grade, and a range of 9 years in the 6B grade. A large range was found in all classes, bright and average as well as dull. This finding was interpreted as showing the necessity for subdividing each of the classes into two or more groups for reading instruction.

The bright classes were distinctly above the norms, as was expected, averaging two terms above grade. However, there were some children below the norms in every bright class. For those above the norms more stress on thought-provoking reading materials and a reduction in the amount of phonic and flashcard drill was recommended. For those below the norms, special attention to specific reading techniques and individualized assignments in the *Gates-Pearson* work-books were advised.

TABLE V. MEDIAN READING GRADES ON THE GATES SILENT READING TESTS IN GRADES 3A-6B

Class	No. of Pupils	Median Reading Grade on Battery	Range on Battery	Median Reading Grade			
				Type A	Type B	Type C	Type D
6B1	40	8.4	11.6-5.5	7.6	7.7	9.7	9.0
2	32	4.4	10.7-3.1	3.8	3.4	5.5	4.2
3	35	5.9	9.2-4.2	5.6	5.5	7.5	5.3
4	36	5.3	11.7-3.6	5.1	5.5	7.0	5.1
5	34	7.0	10.2-4.2	6.1	6.5	8.0	5.9
6	38	7.1	12.7-4.9	6.3	7.5	8.6	6.3
All 6B's	215	6.4	12.7-3.1	5.8	6.1	7.8	6.1
Grade norm		6.5					
6A1	47	6.8	11.0-4.8	6.6	6.7	8.9	6.5
2	33	4.2	6.6-3.9	3.9	3.4	4.4	4.3
3	46	5.6	9.2-4.0	5.1	4.5	7.5	5.2
4	44	5.0	10.0-3.6	4.6	4.3	7.0	4.7
All 6A's	170	5.6	11.0-3.6	5.2	4.9	7.2	5.3
Grade norm		6.0					
5B1	43	7.2	10.8-4.5	6.6	7.0	8.6	5.9
2	32	4.3	7.8-3.4	4.2	3.4	5.5	4.2
3	38	5.1	10.2-3.2	4.0	4.2	6.5	4.9
4	37	4.9	9.5-3.6	4.0	4.2	6.0	4.5
5	38	6.2	9.5-4.1	6.1	5.5	7.5	5.9
6	41	6.0	9.3-3.6	5.6	4.5	7.5	5.2
All 5B's	229	6.0	10.8-3.2	5.2	4.9	7.0	5.6
Grade norm		5.5					
5A1	39	6.1	11.0-4.0	6.1	5.0	8.0	5.2
2	31	3.4	6.0-3.2	3.8	3.7	4.5	3.7
3	37	4.4	10.4-3.5	4.3	3.7	5.5	4.2
4	35	4.9	8.2-3.5	4.6	4.2	6.5	4.4
All 5A's	142	4.8	11.0-3.2	4.8	4.2	6.2	4.4
Grade norm		5.0					
4B1	39	4.8	8.8-3.5	4.3	4.2	6.0	4.5
2	37	4.9	9.1-3.7	4.7	4.4	5.9	4.9
3	29	3.8	8.0-3.1	3.8	3.4	4.2	3.8
All 4B's	105	4.6	9.1-3.1	4.3	4.1	5.5	4.5
Grade norm		4.5					
4A3	38	4.3	9.3-3.4	4.0	3.7	5.5	4.0
4	35	3.3	5.1-2.8	3.2	3.1	3.1	3.4
All 4A's	73	3.9	9.3-2.8	3.6	3.4	5.6	3.8
Grade norm		4.0					
3B1	43	4.2	7.3-3.5	3.8	3.9	5.0	4.1
2	35	3.0	3.5-2.8	3.1	2.9	2.9	3.3
3	38	3.6	5.5-3.0	3.4	3.5	3.2	4.4
All 3B's	116	3.6	7.3-2.8	3.5	3.5	3.8	4.0
Grade norm		3.5					
3A1	39	3.9	7.4-3.1	3.8	3.7	4.2	3.8
2	29	2.9	3.7-2.7	2.9	2.9	2.8	2.6
3	41	3.3	4.9-2.9	3.2	3.0	3.2	3.4
All 3A's	109	3.4	7.4-2.9	3.3	3.2	3.5	3.3
Grade norm		3.0					

TABLE VI. MEDIAN READING GRADES ON THE GATES PRIMARY READING TESTS,
GRADES 1B-2B

Class	No. of Pupils	Median Reading Grade on Battery	Range on Battery	Median Reading Grade		
				Type 1	Type 2	Type 3
2B3	37	3.34	3.51-2.55	3.32	3.35	3.35
4	35	3.10	3.49-1.89	3.2	2.8	3.2
5	25	2.02	3.43-1.46	2.37	1.70	2.10
All 2B's	97	2.91	3.51-1.46	3.03	2.73	2.97
Grade norm		2.5	2.5	2.5	2.5	2.5
2A3	41	3.07	3.49-2.15	3.27	3.10	3.10
4	34	2.22	3.26-1.62	2.65	1.95	2.20
5	29	1.71	2.18-1.43	2.0	1.5	1.7
All 2A's	104	2.41	3.49-1.43	2.71	2.29	2.42
Grade norm		2.0	2.0	2.0	2.0	2.0
1B3	40	1.93	3.28-1.58	2.40	1.62	1.85
4	35	1.70	2.38-1.35	2.0	1.40	1.70
5	31	1.51	1.77-1.51	1.61	1.38	1.55
All 1B's	106	1.73	3.28-1.35	2.04	1.48	1.72
Grade norm		1.5	1.5	1.5	1.5	1.5

The formation of reading clubs to stimulate the reading of library books was urged for all.

In nine of the twelve grades the slow classes were found to be definitely below the norms, with an average retardation of nearly a full year. The retardation was greatest in the fifth and sixth grades, as was to be expected. The teachers of the slow classes were advised to use materials of lower grade difficulty as much as possible, and were referred to books and articles on reading readiness and remedial reading. The very poorest readers were organized into remedial reading groups taught for an hour each day by first grade teachers, whose regular classes were dismissed earlier than the rest of the school.

In the classes of average pupils, the median equalled or exceeded the norm in most cases but many pupils were well below the norms. The recommendations for these

classes stressed the importance of group work within the classroom and attention to individual difficulties.

In considering the results on the separate tests, a very interesting fact was discovered. The good showing of the school as a whole was due mainly to excellent performance on Type C, which deals with the following of precise directions. On Type D, reading of details, the school was about average, and on Types A and B, which measure ability to get the general significance of a paragraph and to predict outcomes, the pupils were in general below average. The high per cent of accuracy on all of these tests showed that the relatively poor scores on Types A and B were due mainly to low rate of reading. This coincided with the principal's previous estimate of the reading instruction in the school. The pupils had been thoroughly drilled in careful, accurate and precise reading, with a great deal of emphasis on oral work. On the tests they showed themselves to be accurate but quite slow. As a result, the recommendations were made that at least two-thirds of the time for reading instruction in the fifth and sixth grades should be devoted to silent reading, and at least half of the time in the fourth grade. The use of timed silent reading exercises and of progress charts for recording speed was also emphasized.

In the first two grades a somewhat similar situation was found, as performance on Type 1, dealing with word recognition, was better than on sentence reading or paragraph reading (the relatively poorer work on sentence reading than on paragraph reading was attributed to special difficulty in following the instructions). This discrepancy seemed to be related to the great stress placed on oral reading, phonetic analysis and flash-card drill in the first two grades. To counteract it the recommendation was made that at least one-third of the reading time in the first two grades should be devoted to silent reading.

This is still considerably less than the weight given to silent reading in most modern schools.

Perhaps the most important result of the survey was the greatly increased interest which the staff showed in the problems of teaching reading. The discovery of poor readers in every class was an eye-opener to many of the teachers. They began to bring up reading problems in conferences and engaged in spirited discussion about the relative merits of different teaching methods. They encouraged the principal to invite a specialist in reading to come and talk to them, and showed their interest by bombarding him with questions. Before the term was over they had formed committees to investigate various aspects of the teaching of reading.

This example of a reading survey has been given in detail to show how a survey may be conducted and what kinds of results may be expected. The school was an average school and was as a whole up to standard. Nevertheless the survey showed several important problems. It disclosed a wide range of ability in each class, and a general need for more stress on silent reading throughout the school. It provided a basis for stirring up the interest of the teaching staff and served as a stimulus for starting a thorough consideration of ways of improving the reading instruction in the school. The specific results of this survey would probably not be duplicated in any other school; each school has its own special problems. The usefulness of the survey is in showing what the problems are that need to be faced.

The survey, however, is only a starting point. Testing is worthwhile only if it leads to genuine improvements in teaching procedures. Specific plans that have been devised to improve the efficiency of reading instruction through changes of organization will be discussed in the next section.

II. ORGANIZING A SCHOOL FOR READING INSTRUCTION

The most important fact that has come out of nearly every reading survey has been the great amount of individual variation in the reading ability of pupils classified in the same grade. Similar differences are also found in other subjects. The recognition of this fact has resulted in the development of many plans which attempt to produce a better adaptation of school practices to the abilities of the pupils.

Homogeneous Grouping

The inadequacies of the old plan of skipping some pupils and making others repeat grades as the only concession to individual differences has long been recognized. Once its shortcomings were known, many plans of "homogeneous grouping" were tried out. All of these plans have as their main idea the grouping of the children in each grade on the basis of their abilities. Grouping is usually done on the basis of intelligence tests, the recommendations of teachers, or a combination of the two. Typical plans divide the children in each grade into three classes (bright, average, and dull) or in large schools sometimes into five or more classes. In some schools the only instructional differences are that the bright groups go faster and the dull groups slower than the average; all study the same curriculum. It is generally thought, however, that homogeneous grouping should be accompanied by differentiated courses of study. The bright children should be given an enriched curriculum, with less drill work and more emphasis on the development of initiative in working under relatively little supervision. By enriching the course of study rather than acceleration, the dangers of social maladjustment that often occur when bright children are placed with children two or

three years older than they are can be avoided. The dull child also needs something other than merely a slowing down of the conventional program of study. The reading needs of this group have been considered in Chapter XI.

When pupils are grouped into supposedly homogeneous classes on the basis of intelligence, wide differences in reading ability will still be found. Good examples of this may be found in Tables V and VI. To take one instance, the 215 children in the 6B grade were in six classes, with the 6B₁ class the brightest and the 6B₂ as the dullest class. The median reading grade of the bright class was 8.4, and that of the dull class was 4.4, a difference of four full grades in median reading ability. However, the range in each class was wide, amounting to six grades in the bright class and more than seven grades in the dull class.² So far as reading is concerned, these classes can hardly be considered homogeneous. Grouping into classes on the basis of general ability lessens the variability in reading ability, but enough variability remains to constitute a real problem.

Classification for Reading in the Elementary School

Modifications of the homogeneous grouping plan have become fairly popular in which the major idea is to group the pupils for reading instruction on the basis of reading ability only, without regard to age or intelligence. Such plans involve the giving of reading tests to all the pupils in the grades in which the plan is to be used. On the basis of the test results the pupils are divided into reading classes, all of which are scheduled for reading at the same time. When the bell rings, each child goes to his reading teacher. In the reading class he will find some pupils from his own grade and others from higher and

² These differences are based on the average of the four tests.

lower grades. When the reading period is over he returns to his regular class.

A program of this nature has been worked out on a large scale as the basis for reading instruction in Cleveland.³ There are two divisions in the elementary schools, grades one to three being kept separate from grades four to six. Within each division reading instruction is scheduled for all classes at the same hour, and at that hour each child goes to a class in which the other children read about as well as he does. Each class is further divided into two or three groups. The course of study is arranged in levels each of which has definite standards of accomplishment to be met. As soon as a child completes the requirements for one level he goes on to the next level. Since at each level there are some bright, young children and some dull, older children, the amount and difficulty of the work is varied according to the learning ability of the child as well as according to his level of reading ability. Duller children are given specific, factual kinds of questions, while the brighter children are given questions of a more general and thought-provoking nature. This differentiated treatment within the classroom is provided in addition to ability grouping.

In the same Yearbook in which the Cleveland plan just referred to is described, accounts of several other somewhat similar procedures are included. In one of them O'Bannon⁴ tells of an experiment in which the children in grades 3-6 of an elementary school were classified into nine instructional groups for reading. In the two lowest groups the teachers found it necessary to devote a great amount of time to word recognition. In the upper groups, quite informal reading programs were devised,

³ *Seventeenth Yearbook of the National Elementary School Principal*, vol. 17, No. 7, July, 1938, pp. 520-527 (National Educational Association, Washington, D. C.).

⁴ *Ibid.*, pp. 533-538.

with large amounts of time spent in library reading. At the end of the term, it was found by means of a questionnaire that 85 per cent of the children preferred the plan, including 53 of the 67 who were placed in reading classes below their regular grades. Re-testing at the end of the term showed quite large gains for the lowest groups.

Forsythe⁵ describes a program in which the pupils in grades 3-5 of an elementary school were classified into six reading groups. Those in the low-third to low-fourth grades were divided into three classes, and those in high-fourth to high-fifth grades into three other classes, on the basis of reading ability. The groups met for a half-hour twice a day, all at the same time. The teachers had the benefit of regular supervision by and consultation with a specialist on reading.

Bigelow⁶ has described a program in which the fourth, fifth, and sixth grade pupils in a school were re-classified for reading instruction. The majority of the pupils came from foreign language homes, and average attainment in reading was low. Three classes were set up, with median reading grade scores of 4.9, 3.7, and 2.2. Each class was in turn sub-divided for small group instruction. The best group was given a large amount of library work. The poorest class was given training in the mechanics of reading and in vocabulary development, easy reading material, and individual help as far as possible. In this group two days a week were devoted to remedial work, two days to reading for appreciation, and one day to reading of materials chosen by the pupils.

In the primary grades some quite elaborate plans for grouping on the basis of reading ability have been reported. One such plan, devised by DeLong,⁷ involved

⁵ Ibid., pp. 546-551.

⁶ E. B. Bigelow, *Improvement in Reading as Shown by Standard Tests, Educational Method*, vol. 13, 1934, 258-263.

⁷ V. R. DeLong, *Primary Promotion by Reading Levels, Elementary School Journal*, vol. 38, 1938, 663-671.

dividing the work of the first two years into six instructional levels in reading, with clearly defined standards for each level. Within each level fast-moving, average, and slow-moving groups were set up. Pupils were moved up from one level to the next as they completed the work; there were no formal promotions and no demotions. In a program reported by Wheat,⁸ pupils in the first three grades were divided into eight instructional groups on the basis of maturity and reading ability. Within each class three sub-groups were organized to allow closer attention to individual needs. Pupils were transferred to a higher group whenever their ability seemed to warrant it, and were promoted to the fourth grade when they had completed the work of the highest of the eight classes.

All of these published accounts report good results in raising the reading abilities of the children on whom the plans have been tried. There is no doubt but that grouping children into reading classes on the basis of reading ability produces classes which are more homogeneous for the teaching of reading than when grouping is based on general intelligence. Another advantage claimed for the method is that it eliminates the necessity for small-group instruction. Forsythe,⁹ for instance, says that before the new organization described above was put into effect in his school each teacher spent half an hour daily with each of three groups in the class, making a total of one and a half hours devoted to reading. Under the revised scheduling each child received a full hour of reading instruction and the teacher saved a half hour daily for other work. Most writers, however, recommend the carrying on of small group work within the classroom even when classes have been organized on the

⁸ L. B. Wheat, *The Flexible Progress Group System, Elementary School Journal*, vol. 38, 1937, 175-183.

⁹ Loc. cit.

basis of reading ability. A third stated advantage is that each teacher can concentrate on learning how to teach children all of whom are at the same level of ability in reading. By becoming a specialist in teaching that specific kind of group he can become a more efficient teacher.

There is not, however, any unanimous agreement that homogeneous grouping for reading gives a complete solution to the problem of organizing a school for reading. The necessity for a set and limited period of reading instruction interferes with the elasticity of programming which is found in many modern schools. When reading is taught a child by one teacher and the other subjects by another teacher, there is apt to be serious interference with the integration or correlation of the work of the pupils. There is little opportunity to combine training in word recognition with spelling, to utilize historical or geographical material for training in work-type reading, etc. The fact that reading is a tool rather than a subject tends to be obscured. These objections are raised most strongly in schools which emphasize a unit or activity program. They are least significant in schools where the different subjects of the curriculum are kept rigidly separated or where a departmental organization is already in operation.

Even when based entirely on reading ability, homogeneous grouping does not eliminate the necessity for attention to individual differences in reading within the classroom. If a class of children all read at the 3A level there is one big advantage in that they all should be able to use the same basic reader with profit. But in such a class there will probably be some children who are bright and good readers and who need mainly a supervised program of extensive reading and some training in work-type reading. Others in the class may be older children held

back by weaknesses in word-recognition. Still others may need attention to overcome carelessness, lip movements, low rate, or other specific shortcomings. The ability to read at the same level of difficulty does not imply identical reading habits or instructional needs.

Homogeneous grouping attempts to solve the problem of individual differences by bringing together in one class pupils whose abilities are on the same level. The alternative to this is dividing the pupils in the classroom into small groups for reading instruction, or devising methods by which each child gets individualized teaching. To the extent that individualized instruction can be successfully carried out, homogeneous grouping becomes unnecessary.

Worlton has described a program instituted in Salt Lake City which depends on differentiated instruction within the classroom for its effectiveness.¹⁰ Instruction in all subjects is centered around large units of study. Reading instruction is given in several ways. For some reading lessons the whole class is brought together. At other times the pupils with similar needs are taught in small groups, and pupils with special difficulties are given individual help by the classroom teacher. These are routine procedures in all classes. Time for individualized treatment is available because during a large part of the day the pupils are working on the unit activities which do not require constant supervision by the teacher.

In the primary grades, some schools have been experimenting with the idea of keeping the first grade teacher with a class for two or three years. This has the potential advantage of allowing the teacher to get to know each child thoroughly, and to have time to understand his problems and adapt instruction to his needs. One such

¹⁰ J. T. Worlton, *Individualizing Instruction in Reading*, *Elementary School Journal*, vol. 36, 1936, 735-747.

plan, described by Boney,¹¹ has already been described on page 70. An account of the use of such a plan with a group of children from foreign language backgrounds has been given by Wahlert.¹² After a year in kindergarten, they were placed in the first grade and stayed with the same teacher for two years. At the beginning, major emphasis was placed on developing readiness for reading. Reading instruction was introduced gradually and was taught on a highly individualized basis. At the end of the two-year period all of the children had developed a liking for reading, and most of them were ready for third grade work. Wahlert says that the emotional effects of the plan were very beneficial, since there was no sense of failure, no comparison of one child's achievements with those of other children, and no fear of low grades or of non-promotion during this critical period.

Those who advocate individualized instruction within the classroom stress the importance of providing reading materials which vary sufficiently in content and difficulty to satisfy the needs and interests of all the pupils in the class. Worlton says that for a program such as he describes, it is advisable to have in each classroom three to five copies of at least fifteen different readers, and forty or more single titles, in addition to one copy of a basic reader for each child. With such a variety of materials effective individualized instruction should not be too difficult. It is hardly possible to provide individualized assignments if the only materials available are one set of basic readers. If an adequate amount of varied materials cannot be provided, some form of homogeneous grouping will probably work out better than an attempt at individualized teaching without suitable materials.

¹¹ C. D. Boney, *The Disposition of a Group of Slow First-Grade Readers*, *Elementary School Journal*, vol. 37, 1936, 203-208.

¹² *Seventeenth Yearbook of the National Elementary School Principal*, pp. 552-556.

Classification for Reading in Secondary School

Grouping plans similar to those employed in elementary schools have been employed successfully in some secondary schools as an aid to more effective work in teaching reading. In secondary schools reading is not usually considered a separate subject, but is included in the curriculum in English. A representative grouping program of a kind suitable for junior and senior high school English classes has been reported by Miller.¹³ Nine classes of seventh grade pupils were given standardized reading tests and re-classified on that basis. A three-track program was worked out, with different materials and teaching procedures for the superior, average, and inferior classes. The poorer pupils were provided with specially selected books and library lists, and made use of reading work-books. Somewhat similar plans, involving ability grouping in English on the basis of reading tests, intelligence tests, or a combination of the two, have been employed in many secondary schools.

A different approach to the improvement of reading ability in secondary school has been described by Strang.¹⁴ Conferences of the teachers in a high school were held in which the need for attention to reading throughout the school and methods of improving reading ability were discussed. An all-school program was worked out in which the teachers of all subjects stressed the improvement of one reading skill (such as selecting the main idea of a selection) for a period of two weeks, and then another skill was stressed during the next two weeks. By the end of the term a well-rounded program had been covered. In addition to the all-school program, the twenty poorest

¹³ G. E. Miller, *Adapting Reading Materials to Varying Ability Levels*, *English Journal*, vol. 27, 1938, 751-759.

¹⁴ R. Strang, *Improvement of Reading in High School*, *Teachers College Record*, vol. 39, 1937, 197-206.

readers, selected on the basis of intelligence and reading test results, were gathered together in a remedial reading class. Such an all-school program has the important advantage of providing instruction in the adaptation of reading skills to the requirements of the different secondary school subjects, and, used in combination with special provisions for the poorer readers, has many things in its favor.

In many secondary schools the only administrative procedure aimed directly at the improvement of reading is the segregation of the poorest readers into special remedial classes, usually scheduled as English classes. Such a procedure is beneficial to the remedial pupils, but neglects the large potentialities for improvement which the majority of the pupils possess. There is no good reason why systematic effort to develop the reading ability of normal and superior readers should be restricted to the elementary school.

Special Provisions for Remedial Reading

Although homogeneous grouping for reading and all-school programs are helpful, they fail to meet the needs of severe disability cases. In the elementary school, a sixth grade pupil placed in a slow-reading class where the average ability is of fourth or fifth grade level may be nearly as much at a loss, if his reading ability is of first or second grade level, as in his regular grade. A typical slow-reading class at the secondary school level often has its instruction pitched at too high a level for the few with reading ability below the sixth grade. A second difficulty is the necessity for detailed diagnosis when dealing with severe cases of reading disability. A classroom teacher, even when able to carry through such a diagnosis, may not be able to spare the time required when several such cases are present in one class.

At the elementary school level two main forms of organization for special remedial instruction in reading have been evolved. The first is the provision of a remedial teacher to meet the children with reading disabilities in small groups. A special room is set aside, and the teacher meets one small group (often called a "reading club") after another throughout the day. Under such an arrangement a teacher can meet with twenty-five or more children in groups of five or six. As pupils become able to do the work of their regular classes they are replaced by other disabled readers. This plan requires, of course, an extra teacher in the school. The other plan involves the creation of a remedial reading home room. The most severe disability cases from all grades are gathered together under a specially qualified teacher and stay in that class throughout the day; reading is given a very prominent part in the class program but the other subjects are not neglected. Necessarily the teacher of such a group must be well versed in methods of individualized instruction, not only in reading but in the other elementary school subjects. By juggling class enrollments it is sometimes possible to set up a remedial reading home room without enlarging the size of the teaching staff.

The remedial home room has an advantage over the reading club plan of providing an integrated program, in which the teacher can correlate the child's work in English, spelling, penmanship, history, geography, etc., with his remedial work in reading more successfully than is usually the case when the child has one teacher for reading and goes to another teacher for his other work. Another advantage is the possibility of building up a better understanding of the child when he is with the teacher all day than when he is seen for only one period. More consistency in the handling of the child's emotional and

behavior problems is also possible when the child is with the remedial teacher all day.

On the other hand, the reading club plan also has points in its favor. With only a few children present at one time, each child can be given a greater share of the teacher's attention than is possible in the remedial home room. This allows more extended and detailed diagnoses, and more readily permits the use of remedial methods in which the teacher must work with the child individually. In general, the small remedial group or completely individualized tutoring is preferable, when it can be provided, for the most severely disabled readers.

Many schools have found ways of providing special remedial teaching for their poor readers without expanding their staffs. In some schools the first grade children are dismissed earlier than the rest of the school, and the first grade teachers devote the remainder of the school day to remedial work with their own poorest pupils and with disability cases from upper grades. A teacher is detached for remedial work a few times a week in other schools by doubling up classes for lessons in painting, nature study, music, handwork, etc. One school known to the writer was so crowded that it was necessary to double up, with one set of teachers and pupils in the morning and another set in the afternoon. The morning classes met from eight o'clock to noon, and the afternoon classes from noon to four o'clock. The school was in a poor neighborhood and had a high percentage of poor readers and disciplinary cases. By having the morning teachers stay until one o'clock and the afternoon teachers come at eleven, a full set of teachers was available for remedial work and other special duties for two hours a day. In this way a handicap was turned into an asset. When there is a genuine desire to provide remedial instruction a way can usually be found.

In practically every remedial program a small number of children (usually around five per cent) is found who do not improve under good remedial teaching. While these failures are sometimes the result of injudicious remedial methods, they are probably more often cases in which unusual causal factors such as unsuspected neurological injuries or deep-lying emotional difficulties are present. To care for such cases there should be available in the community a child guidance clinic, whose staff of psychiatrists, psychologists, and social workers can make a more intensive and thorough diagnosis than can be expected of a remedial teacher. Child guidance clinics would be swamped if they tried to care for the majority of reading disability cases, and most poor readers do not need clinic treatment. It is desirable, however, to have a clinic available to which the small proportion of baffling cases can be sent.

At the secondary school level, with relatively few exceptions (such as specially organized classes for mentally retarded children and serious behavior problem cases) the program of study is departmentalized, so that the remedial home room plan is not employed. The majority of secondary schools that have provided for remedial work in reading have relied on the organization of remedial reading classes, for which the poorest readers are selected on the basis of silent reading tests, and which take the place of English in the pupil's regular program. Often no distinction has been made between genuine disability cases and retarded readers who are intellectually dull and need a program suited to their abilities rather than a definitely remedial program. Remedial instruction has often proceeded by what might be called a "shot-gun" method; that is, instead of basing the instruction of each child on difficulties disclosed by an individual diagnosis, the whole class is given doses of everything that might

help some of them, in expectation that each one will get out of the program what he needs. For pupils who have a fairly sound mastery of the mechanics of reading but have little interest in reading, engage in little or no voluntary reading, have restricted vocabularies, or have failed to develop systematic study habits, such programs are usually beneficial, and often result in highly satisfactory improvement. For the more extreme disability cases individual diagnosis and individual or small-group instruction should be available. Individualized programs of this sort at the high school level have been described by McCallister,¹⁵ Traxler,¹⁶ Barry and Pratt,¹⁷ and Center and Persons.¹⁸

Monroe¹⁹ has described a remedial program set up in Pittsburgh which seems unusually well-rounded. There is first of all a preventive program which starts with the classification of first grade entrants and the provision of reading-readiness classes for those unlikely to master the average first year program. Secondly, provisions for remedial work are an integral part of the elementary school program. These provisions vary with the needs of the individual school, and include the remedial period plan in which the whole school is reclassified for reading instruction, remedial reading home rooms, and small remedial reading clubs. Finally, a clinic is available for the thorough study of severe problem cases. In addition to the usual clinic staff, there is a reading supervisor attached to the clinic who visits the child's school and

¹⁵ J. M. McCallister, The Effectiveness of Remedial Instruction in Reading in the Ninth Grade, *School Review*, vol. 39, 1931, 97-111.

¹⁶ A. E. Traxler, An Experiment in Teaching Corrective Reading to Eight Seventh-Grade Pupils, *Journal of Educational Research*, vol. 29, 1935, 247-253.

¹⁷ L. Barry and M. Pratt, A Remedial Reading Program in a Public High School, *School Review*, vol. 45, 1937, 17-27.

¹⁸ Stella S. Center and Gladys L. Persons, *Teaching High School Students to Read* (D. Appleton-Century Co., N. Y., 1937).

¹⁹ M. Monroe, Diagnostic and Remedial Procedures in Reading, *Educational Record*, vol. 19, 1938, Supplement No. 11, 105-113.

advises the child's regular teacher. This program seems to be one which other systems could copy to their own advantage.

III. SUPERVISION AND THE IMPROVEMENT OF READING INSTRUCTION

A well conceived program for better reading must be directed toward specific goals. The selection of immediate goals can be properly accomplished only if one starts by finding out the strong and weak points in current procedures. A careful survey is therefore the first essential step in a campaign for better reading. The value of such a survey has been pointed out earlier in this chapter. In addition to measurement of the reading accomplishments of the pupils, a thorough survey should include an investigation of the aims and methods now being stressed by the teachers, and a careful study of the reading materials that are available for use by the pupils.

A comprehensive survey takes time and effort, and is worthwhile only if the information it discloses is used intelligently. Only too often tests have been given and scored, detailed statistical analyses have been made, and the results have then been placed in a drawer to gather dust. Intelligent application of the results of a survey can be made only by people who are acquainted with recent trends in reading instruction. Before starting such an undertaking, then, the supervisor should attempt to broaden his understanding of the problem of reading instruction by study of the current literature. Securing the advice of a specialist in reading will often prevent wasting of time and effort. Many school systems are finding it profitable to retain a remedial expert as a member of the supervisory staff, either as a consultant or on a full time basis.

It is unwise to attempt to revolutionize teaching methods overnight. Changes should be introduced progressively as the need for them becomes apparent. It is advisable at the beginning to center attention on one or two major problems disclosed by the survey. The attempts to solve these problems will bring out new difficulties which can be dealt with in turn. A reading program will be most effective when it is evolved gradually over a period of years.

The relations between the supervisor and the teachers are of paramount importance. The supervisor's attitude should be that of a leader in a co-operative undertaking, rather than that of a dictator giving orders to subordinates. Teachers, like other people, are apt to regard a suggestion for changing their methods as an attack on their abilities. A method of approach which begins by labelling their methods wrong or bad is almost sure to incur their resentment and hostility, so that in subtle ways they will try to make the new methods fail. If the teachers are to take an effective part in a program of improvement, their interest and willingness to participate must first be aroused. This can usually be accomplished by conferences in which the results and implications of the local survey are explained and discussed. Emphasis ought to be placed on possibilities for improvement rather than on criticism of present accomplishments. Through the organization of committees to study specific problems, teachers can play an important and useful part in the formulation of policies and in working out the many details that any new plan involves. Most teachers will enter eagerly into plans which they can regard as, at least in part, their own creations.

Putting a new plan into action involves a period of readjustment for the teachers. It takes time to get used to a new procedure, and during such a period many

teachers experience feelings of bewilderment and frustration. If the plan is to succeed, the teachers must be given as much help as possible in putting it into effect. The changes to be introduced should be clearly defined and explained. The teachers should be given opportunities to learn the new techniques through conferences, lectures, exhibitions of materials and teaching aids, and especially through opportunities to observe and discuss demonstration lessons. Professional literature should be made available for them to read. The books and other teaching materials that are required by the plan should be supplied in sufficient quantities. Allowance should be made for the extra time and effort that a new method requires of the teacher. Finally, in observing the work of the teacher, tactful encouragement and assistance in solving problems should be emphasized.

No one has yet produced a perfect plan for organizing the teaching of reading, and it is unlikely that the point will ever be reached at which further improvement is impossible. After a new plan has been devised and tried out, an evaluation of its results will always show ways in which it can be changed for the better. There is need for continued critical study and for continued effort to make good plans still better. A school which stops moving forward is already moving backward.

SUGGESTED ADDITIONAL READING

- Newer Practices in Reading in the Elementary School, *Seventeenth Yearbook of the National Elementary Principal*, vol. 17, No. 7, July, 1938, Chs. IX and X.
- The Teaching of Reading: A Second Report, *Thirty-Sixth Yearbook of the National Society for the Study of Education*, Part I, 1937, Ch. XIV (Public School Publishing Co., Bloomington).
- William S. Gray and Gertrude Whipple, *Improving Instruction in Reading*, Supplementary Educational Monograph, No. 40, 1933 (University of Chicago Press).

CHAPTER XIII

INDIVIDUALIZING READING IN THE CLASSROOM

In the preceding chapter problems involved in organizing a school for greater efficiency in reading instruction have been considered. It was pointed out that there remains a need for adapting reading instruction to the varying needs of pupils within a classroom even when efforts have been made to group together pupils of similar intelligence or reading ability. Specific methods by which individualization within the classroom can be achieved have not yet been discussed, and form the subject-matter for the present chapter. In general, these methods can be classified into two major types: methods which involve the formation of sub-groups within the class and methods which provide individualization without definite grouping.

I. TEACHING READING TO GROUPS WITHIN THE CLASSROOM

There have been many reports in the past few years of plans for teaching reading which are based on the idea of dividing the pupils of a class into smaller groups for reading instruction. As Durrell has said, "The merit of instruction for small groups lies in the opportunity provided for making the lessons more nearly fit the level, rate of progress, and interests of the individual pupils."¹

The basis on which the grouping is made differs according to the grade level of the class, and according to the reading needs of the pupils. There is considerable vari-

¹ D. D. Durrell, *Providing for Individual Differences in Reading*, *Education*, vol. 56, 1935, 30-36.

ation in the plans for grouping that have been described. Shields used a classification of sixth grade pupils into four groups: the best readers, those who were slow but thorough, the skimmers who were poor in comprehension, and those who were generally poor.² Youngman has reported a division of a seventh grade class into five groups: rapid-accurate (superior in both rate and comprehension); median-balanced (average in both rate and accuracy); rapid-inaccurate (weak in comprehension); slow-accurate (weak in rate); and slow-inaccurate (weak in both rate and comprehension).³ Davis, working with pupils in grades four to six, has given as an example the division of a class of forty pupils into three groups.⁴ Group one consisted of twenty-two pupils who were up to the norms and did not need remedial teaching; group two contained ten pupils who needed training in thought-getting; and group three included eight pupils who needed training in work recognition, vocabulary building, and phrasing. McLatchy and Beavers grouped sixth-grade pupils into fast, average, and slow groups with regard to rate of reading.⁵ These examples indicate the wide range of grouping plans that have been tried.

It is apparent that opinions differ considerably about the basis on which grouping within the classroom should be made. This is a desirable situation, since no two classes are exactly alike in the distribution of reading ability, and a type of grouping that may be appropriate for one class may not adequately meet the needs of another class. A class should be sub-divided for instruction

² J. M. Shields, *Teaching Reading Through Ability Grouping*, *Educational Method*, vol. 9, 1927, 7-10.

³ *Seventeenth Yearbook of the National Elementary Principal*, vol. 17, No. 7, July, 1938, Ch. IX.

⁴ G. Davis, *Procedures Effective in Improving Pupils of Poor Ability in Regular Reading Classes*, *Elementary*, vol. 31, 1931, 336-348.

⁵ J. H. McLatchy and E. B. Beavers, *A Sixth Grade Teacher Studies Reading*, *Ohio State University Educational Research Bulletin*, vol. 13, 1934, 141-147.

on the basis of the evident abilities and needs of the pupils.

A good description of grouping as employed in a remedial reading home room class has been given by Donnelly.⁶ The class was composed of poor readers in the fourth grade, selected by means of reading and intelligence tests given in the third grade. The regular curriculum was followed, but every opportunity was taken to use other subjects for practice in reading—social studies books, spelling lessons, the reading of arithmetic problems, etc. The class was divided into five groups, the grouping based on level of comprehension in silent reading. A few of the pupils were selected to act as group leaders, or pupil teachers. They were given careful instructions the day before about what to do. This privilege was rotated so that most of the pupils had a chance at being a leader at some time. The teacher stayed with the poorest group most of the time while the other groups were in charge of their group leaders. Not all lessons were arranged on a small group basis. The whole class was brought together for speed drills on easy material, vocabulary lessons, specially prepared mimeographed exercises in silent reading, and discussions of a preparatory nature at the beginning of new units of study. Detailed tests were given about every two weeks, vocabulary notebooks were kept by the pupils, and daily progress was indicated for each child on a large wall chart. At times the usual grouping was replaced by the formation of special groups for training in word analysis, vocabulary building, etc. With the exception of mimeographed materials prepared by the teacher, the materials were such as are available to regular teachers in well-

⁶ H. E. Donnelly, *The Remedial Reading Classroom*, *Education*, vol. 59, 1938, 31-36.

equipped schools. The results are reported as very satisfactory.

When a teacher is trying to learn the technique of small group instruction, it is wise to start with two groups. After the teacher has learned how to keep two groups busily engaged, he can then experiment with finer subdivisions. It is no advantage to form more groups than can be handled effectively. Unquestionably it takes more time to prepare a reading lesson for several different groups within a class than it does to prepare one lesson for the class as a whole. Each group requires a separate preparation. Especially when a teacher is new to the method it is highly important to make careful plans; without them, chaos may result. Teachers who are averse to spending time in planning lessons will not as a rule enjoy teaching by small-group methods. Hard work and careful preparation are necessary to put any new method of teaching into operation, and a teacher who wishes to improve his procedures must expect to work harder during the period of readjustment.

A problem that makes many teachers hesitate to try small-group instruction is their fear of not being able to keep the rest of the class profitably occupied while they are engaged in teaching one group. There are several ways in which this can be accomplished. One of them is to assign one group a silent reading selection, with questions to be answered in writing, while the teacher works directly with another group. If suitable work-books are available, they simplify the task of making assignments to the groups that are to work independently. Another workable plan is the use of good pupils as the leaders of the different groups. This plan can be successfully employed provided that the teacher explains clearly to the pupil assistant before each lesson exactly

what he is to do, and supervises his work until he becomes proficient at it. This plan is more likely to work in the upper than in the lower grades. If the teacher finds it difficult to keep all of the groups busy on different reading lessons at the same time, other subjects may be substituted. For instance, one group may work on written arithmetic problems while another group has an oral reading lesson. Then the first group has its arithmetic while the second group reads. Written work in arithmetic, the writing of compositions, and drawing and handwork of various kinds can all be successfully employed in this way. A carefully planned schedule is necessary to avoid confusion. The teacher must have a definite idea as to what each group is to do during each part of the day that is devoted to reading.

An Example of Small-Group Instruction

This teacher had a class of thirty-one pupils in the high third grade (3B). It was the only class at that grade level in the school, and contained pupils whose I.Q.s ranged from 76 to 132, with a median of approximately 100. The I.Q.s were based on the *Stanford-Binet* which had been given to the pupils in the first grade, more than two years before. The economic status of the neighborhood was rather poor, and the majority of the pupils came from homes in which foreign languages were spoken.

At the beginning of the term the teacher administered the *New Stanford Reading Test* and the *Gray Oral Check Test*, Set II, to all the pupils. The oral test was administered by calling the pupils to the desk one at a time while the rest of the class was busy with seat work. After the tests were scored the teacher constructed a class analysis chart, a portion of which is reproduced in Table VII. The entries for each child included his name, chronological age, I.Q., mental grade, reading grades for

TABLE VII. CLASS ANALYSIS CHART OF READING IN A 3B CLASS

<i>Pupil</i>	<i>C.A.</i>	<i>I.Q.</i>	<i>M.G.</i>	<i>Reading Grade on New Stanford Par. Wd. Tot.</i>			<i>Gray O. C. Er. Rate</i>	<i>Oral Reading Diagnosis</i>	<i>Special Needs</i>
A	8-10	115	4-7	4.6	4.5	4.5	4 1'5"	Careless errors.	Overcome carelessness.
B	8-3	104	3-3	4.3	4.0	4.1	5 1'9"	Repetitions; slight stutter.	Encouragement to develop confidence and overcome stutter. Speech Correction class.
C	9-1	112	4-7	*	*	*	*	Innumerable errors, of all kinds. No method of attack on words.	Disability case. Very nervous; needs encouragement. Word discrimination, 2nd grade work.
D	9-1	98	3-6	4.0	3-7	3-9	3 1'20"	A little slow.	Attention to speed.
E	8-0	104	3-1	*	2.6	*	16 2'53"	Very slow; confuses similar words; no attention to meaning.	2nd grade work, with attention to work recognition and special emphasis on comprehension.
F	8-11	89	2-7	2.6	2.6	2.6	14 2'57"	Very slow; no method of attack; little attention to meaning.	Work normal for ability, except for oral reading. Second grade work, similar to Pupil E.
G	9-7	83	2-8	3.1	3-5	3-3	9 1'56"	Errors mainly repetitions; slow, hesitant.	Doing well for ability. Audience reading to develop poise.
H	9-1	105	4-1	2-9	3-2	3-1	21 3'40"	Varied errors — very slow; no method of attack; skipped a line.	A context reader — much worse on oral. Nervous. Word discrimination, encouragement, try at 3rd grade reader.
I	8-7	108	3-8	4-4	4-4	4-4	1 51"	Best reader.	Much free reading. Assist poorer pupils.

* Too poor to be scored. Average performance for this class according to the norms is 3.5 on the New Stanford, 3 errors and 1'3" on the Gray Oral Check Tests, Set II.

Paragraph Meaning, Vocabulary, and Total Score on the *New Stanford*, number of errors and rate on the *Gray Oral Check*, a summary of the significant features in the pupil's oral reading, and a statement of his special needs in reading instruction.

The pupil's age and I.Q. were obtained from his record card. To find the mental grade, which was an approximation, his I.Q. was multiplied by his chronological age to get his estimated mental age, and the corresponding grade level was obtained from the age-grade equivalents in Table III, on page 133. The mental grade was used instead of mental age to allow a direct comparison with the grade scores on the *New Stanford*. The entries in the column headed "Oral Reading Diagnosis" were based on an analysis of the kinds of errors made by the pupil as well as the total error and rate scores. The recommendations listed in the column headed "Special Needs" were determined by the teacher on the basis of the test results and the impressions gained in the reading lessons of the first week of the term. The scoring of the tests and construction of the Class Analysis Chart took about eight hours of work outside of class time.

Inspection of the chart showed that all except eight of the pupils were up to or beyond the third grade level in silent reading. These eight pupils were all quite poor in oral reading as well. The rest of the class could be kept together for silent reading. Although their silent reading ability varied over a range of nearly two grades, from low third to high fourth, they were all capable of reading third grade material. They showed varied faults in oral reading, however. Five of them were very poor in oral reading and showed a definite need for instruction in word recognition. Five were simply careless. Four showed definite signs of nervousness in oral reading, hesitating and making many repetitions. Three were sat-

isfactory except for low rate. One had indistinct enunciation, one had a slight stutter, and one read without any expression. Only three children were satisfactory in all respects.

Before deciding on a definite plan of instruction, the teacher first considered the reading materials she would be able to employ. These included a full set of the third readers of the *Elson-Gray Basic Readers* and accompanying work-books, a full set of the third readers of the *Webster Readers* for supplementary use, and a library table with about thirty varied books. Realizing that she needed some easier material for the poorest pupils, she managed to secure eight copies of the second reader of the Gates-Huber *Work-Play Series* and the preparatory book that accompanies this reader. She also borrowed a few books of second grade difficulty for the library table, and purchased fifteen ten-cent books of varied content.

The teacher decided to divide the class into three groups. Group A consisted of the pupils whose silent reading was at or above the third grade level and who did not need special training in word recognition. Group B included the eight pupils who were very poor in both oral and silent reading. Group C contained the five who were satisfactory in silent reading but needed help in word recognition. This group stayed with Group A for silent reading and with Group B for oral reading and word recognition lessons. There were, therefore, three instructional groups, but the groups were arranged in such a way that only two separate reading lessons would be going on at the same time.

Considerable effort was expended to increase the amount of free reading done by the pupils. A drive to increase the use of the neighborhood public library resulted in an increase in the number of library cards from six to twenty-seven. Pupils were encouraged to bring

books and magazines from home and lend them to the class library. A large chart was prepared with an individual envelope for each pupil. When a pupil finished reading a book from either the class library or the public library, he was questioned to make sure that he had read it, and then a bright colored slip of paper bearing the title of the book was inserted in his envelope. This proved to be effective motivation, and by the end of the term there were several slips in nearly every envelope. A class librarian was appointed and a regular procedure for borrowing books by signing cards was instituted. The pupils were encouraged to make use of the library books when they had some time to spare between lessons. Each pupil had a library book in his desk at all times. The best readers who finished their assigned work early were kept occupied in this way.

A class bulletin board was set up on which were displayed a daily calendar and weather report, announcements of special class activities, and a daily riddle. A box for answers to the riddles was provided, and a chart showing the number of correct answers by each pupil was kept. The riddles aroused keen interest. One of the good readers was entrusted with checking the answers and making the entries on the chart.

In teaching word recognition to Groups B and C, considerable use was made of a set of practice cards, constructed by the teacher. Each card was intended to give practice on one phase of word recognition. About sixty cards were used.

A sample card, intended to give practise in discriminating short *a* and short *u* as middle vowels, was arranged as follows:

rang	ham	bag	sack	rash
rung	hum	bug	suck	rush

The man hung a bag of ham in the rack on the truck.

Part of each word recognition lesson was devoted to an oral lesson in which the teacher taught the principle involved and gave practice to the group by means of flash card drill and board work. Then each pupil was given a practice card to study. When he was able to read correctly every word on the card the teacher gave him a new card to study. A number of games and contests like those described above on page 253 were also used.

In planning specific lessons the teacher followed fairly closely the recommendations in the teachers' manuals for the reading texts used. She attempted to provide a variety of different kinds of lessons for each group, with more emphasis on oral reading and word recognition for groups B and C than for Group A. Some periods were provided in which all groups were engaged in silent work. During these periods the teacher gave individual help to pupils who had special difficulties. Two half-hour periods a day, one in the morning and one in the afternoon, were devoted to reading. A description of the plans for one week will now be presented. It should be noted that procedures varied somewhat from week to week.

Monday morning. The period started with a discussion of "make believe stories" (the title of a group of stories in the reader), in which all pupils participated. The pupils discussed the meaning of make believe, read orally the introduction to the section on "Old Tales" in the Elson reader, and looked over the table of contents for the section. As preparation for the story "The Princess Who Never Laughed" the pupils were questioned about a previous story they had read about a princess who could not cry, and asked to suggest ways of making a person laugh. Three important new words in the story were introduced. There was no separate lesson during this period for Group B.

Monday afternoon. Groups A and C were assigned the story "The Princess Who Never Laughed" for silent reading, with questions on comprehension to be answered in writing. Group B was given a two-page exercise in their work-book to complete, which provided exercise in word discrimination and following directions. As both groups were working silently, the teacher walked around and gave help where needed. The written work of Groups A and C was collected for correction; the work of Group B was corrected by the teacher as she walked around.

Tuesday morning. Groups A and C re-read "The Princess Who Never Laughed" silently for the purpose of selecting the funny parts. The selections they chose were then read orally. Group B first did an exercise in their workbooks (p. 19) designed to give practice in discriminating between words of similar appearance. They then read silently Part II of "Little Jack Rabbit" in the Gates-Huber second reader.

Tuesday afternoon. Group A worked silently on exercises 21 and 21a in their work-books, which provided training in rearranging the events of the story they had read in chronological order. Group B reviewed orally the answers to the exercise they had done in the morning. Then Groups B and C were given a lesson on the short vowel sounds.

Wednesday morning. Group A had a period of free reading in library books. Groups B and C took turns reading orally from "The House That Jack Built," a repetitious story providing good practice in word recognition, followed by exercises in the pronunciation of words with final *e*.

Wednesday afternoon. Groups A and C were given a brief introduction to the story "Brother Fox's Tar Baby." The properties of tar were explained, and the children

were questioned about other stories they had read in which one animal played a trick on another. They then took turns reading the story orally, without previous silent reading, as the story was quite an easy one. Group B re-read Part II of "Little Jack Rabbit" to find the answers to the questions on page 20 of their work-books.

Thursday morning. Groups A and C worked on exercise 23 in their work-books, designed to test retention of facts in "Brother Fox's Tar Baby." As the directions in this exercise were difficult to follow, this required close supervision by the teacher. Group B did the exercise on page 21 in their work-books, an introductory exercise for Part III of "Little Jack Rabbit," and then read that part of the story silently.

Thursday afternoon. Group A read silently "The Frog's Saddle Horse," a five-page story in their supplementary reader, and answered in writing questions on the story. Groups B and C were given a lesson in the discrimination of common words beginning with *th* (the, then, there, etc.).

Friday morning. Group A did exercise 22 in their work-books, designed to give training in the use of context clues and in discriminating between words of similar form. Groups B and C were given practice in distinguishing words alike except for final consonants, (bang—band, etc.).

Friday afternoon. The whole class was given a free reading period. The teacher gave individual help to a few pupils. A period of audience reading followed in which a number of pupils read specially prepared stories and poems.

The results of this program were on the whole quite favorable. The class, and especially the poorest readers, developed greater interest in reading. The books on the library table were in constant demand. Groups B and C

showed marked improvement in the accuracy of their reading, and also improved in spelling. During the term four of the poorest pupils asked to be allowed to use the third reader. They were allowed to try it, and all succeeded in keeping up with the work. Little was accomplished with two of the pupils. One was a boy with a recorded I.Q. of 76. The teacher suspected that he was even duller than that and referred him for examination for transfer to a special class for mentally retarded pupils. The other was a girl who was very apathetic and showed no interest in the work. The teacher found out that she had a glandular abnormality and was under medical care, but apparently without effect on her school work. The teacher felt that the results achieved were worth while. They had, however, involved the expenditure of considerably more effort in the classroom and much more time in preparation than her former methods.

II. INDIVIDUALIZING READING WITHOUT FORMAL GROUPING

The heart of most programs for individualizing instruction in reading is what is generally called *free reading*. This means silent reading periods in which each pupil is reading something that he has selected for himself. Plans based upon free reading as a core have been employed from the first grade up to the last year of high school. In some programs, entire reliance is placed on free reading; in most, it is combined with other reading activities. Since these plans differ considerably among themselves, their characteristics can best be indicated by describing a number of representative programs.

Boney⁷ has described the application of the free read-

⁷ C. DeW. Boney and E. Leman, *Individuality in Beginning Reading*, *Education*, vol. 59, 1938, 17-20.

ing idea in the primary grades. At the beginning of the first grade the pupils were allowed to choose from a large variety of pre-primers, picture books, etc. The teacher spent a few minutes with each child, reading to him, discussing the pictures with him, or letting him try to read to her. Children were started on reading as they showed signs of readiness, and were allowed to progress at their own rate of speed, with wide latitude in choosing their own reading. Many of their choices were brought from home. Through the primary grades, the pupils were allowed continued freedom of choice. "One can sometimes see a child reading a primer in a third grade seated beside a child using a fifth reader." The facts that the children who have succeeded with this program come generally from above average homes and are in small classes provided with a rich variety of books and teaching materials must be considered in evaluating the success of the program.

Dolch has worked out a procedure⁸ which he calls "mass remedial reading." He describes it as a method which can be carried out with the entire class, by the regular teacher, and with regular teaching materials. The central idea in the plan is a free reading period for the whole class for twenty minutes each day. During this period the teacher goes around the room, gives help to pupils who need it, advises pupils on the choice of reading matter, and sees that things are going smoothly. Instead of having sets of basic readers, the class is provided with a library of books ranging in difficulty from primer level up; the grade levels, if indicated in the books, are to be pasted over or otherwise concealed. Part of the teacher's responsibility is to see that each pupil is reading material of an appropriate level of difficulty.

⁸ E. W. Dolch, *Mass Remedial Reading, Educational Administration and Supervision*, vol. 23, 1937, 541-546.

Besides the free reading period, two other kinds of activities are provided. One is the thorough mastery of a basic sight vocabulary.⁹ Each pupil is supplied with a pack of cards with one of the basic words on each card, and the pupils work in pairs until they master all of the words. The other activity includes systematic training for the whole class in phonetic analysis, with emphasis on initial consonants, short vowels, vowel digraphs (such as *ea*, *ie*), and syllabication. This program, if used, should be best adapted to the work of grades two to five.

Dean¹⁰ has described the procedure generally followed in Sacramento, which is also based on free reading. A typical fifth grade class, with pupils varying widely in intelligence and reading ability, was provided with a class library of forty-five books, ranging in difficulty from third grade to seventh grade, and covering a wide variety of topics. No general reader was used. The reading periods were devoted to silent reading, with each pupil reading a different book. When a pupil finished a book the teacher tested him on it and helped him to select another one. During the reading periods the pupils were called to the desk one at a time for oral reading, drill on new words in their vocabulary note-books, and remedial help when necessary. The last five minutes of each period were devoted to carefully prepared audience reading. Dean comments that "While the individual plan does not lessen the work of the teacher, it does take away much of the drudgery because pupils are more interested and progress is more apparent."

An account of the application of free reading at the high school level has been given by Gibbs.¹¹ A class of

⁹ See discussion of this word list on page 262.

¹⁰ *Seventeenth Yearbook of the National Elementary Principal*, vol. 17, No. 7, July 1938, Ch. IX.

¹¹ E. F. Gibbs, *Remedial Work Through Free Reading*, *English Journal*, vol. 23, 1934, 827-831.

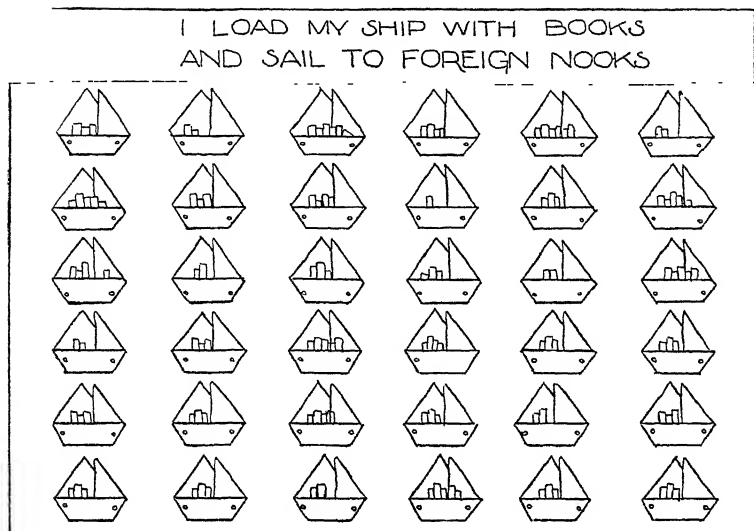


FIG. 34. Wall chart for recording supplementary book reading. Background is heavy colored pasteboard. Ships are cut out of colored construction paper, folded to form a pocket, and are held in place by brass fasteners. When a pupil has finished a book and has made a satisfactory report, the teacher prints the name of the book on a colored slip of paper and places it in the child's ship. Ships can be turned inside out and used with another class.

forty sophomores in English presented a serious teaching problem. Their I.Q.s ranged from 71 to 122, their reading percentiles varied between 2 and 94, over one-third were repeaters, and nearly all of them disliked reading. The method of teaching this class was based primarily on free reading. Forty-five varied books were borrowed to serve as a class library. At the beginning of each period a few minutes were spent in discussing common difficulties, and the rest of the period was spent in silent reading. The teacher held conferences with each pupil in which the pupil's background, interests, and difficulties were discussed. Individual and class progress charts were kept. Understanding of the books that were read was

checked by brief written tests or by informal discussion in the conferences. Gibbs reported a marked increase in interest in reading and a decided gain in reading ability for the group.

Free reading has become increasingly popular at the secondary school level as a substitute for prescribed reading in a small number of classics, as an inspection of any recent volume of the high school edition of the *English Journal* will show. Among the many reports, two which describe results over a period of years may be mentioned. LaBrant¹² has given a general description of a program of completely free reading carried out at the high school level in the Ohio State University School. She reports that the reading done by these superior students was highly satisfactory in quality as well as in quantity. Progressive improvement of taste and broadening of interests was evident. The proportion of narrative fiction read declined from 73 per cent in the tenth grade to 34 per cent in the twelfth grade, and gains were made in the amount of drama, poetry, essay, and social science material read. Similar results have been reported from a free reading program in Negaunee.¹³ The pupils were given some guidance but chose their own books. The average number of books read per pupil increased from 15 to 55 per year. The selection of books followed wholesome standards, and there was evidence of growth in taste. Judging from these and other reports of the results of free reading programs, the fear that pupils will select only trash when allowed to make their own choices is not justified.

Some interesting suggestions on how to arouse interest in a free reading program are contained in an article by

¹² L. L. LaBrant, *An Evaluation of the Free Reading in Grades Ten, Eleven, and Twelve, for the Class of 1925, The Ohio State University School* (Ohio State University Press, Columbus, 1936).

¹³ R. C. Schoonover, *The Negaunee Reading Experiment, English Journal*, vol. 26, 1937, 527-534.

Brooks.¹⁴ He began by instituting a book club, the requirement for membership in which was a report on one book. To get the pupils interested in magazine and newspaper reading, he told them that on Mondays there would be no homework; they would only have to bring in a clipping from a magazine or newspaper and be ready to make an oral report on it. Through interviews he tried to find out their interests and suggest books they would like to read. Literary forums were held in which the pupils were encouraged to air their views freely about the books and other things they read. To arouse interest in a specific book, he would sometimes read the first few pages to the class. These procedures seem to have been quite successful in overcoming a distaste for reading in a class of retarded readers.

Since in a free reading program the pupils read only what they like, there are great possibilities for developing and broadening interest in reading. Extensive reading will in itself bring about some enrichment of vocabulary and improvement of speed and comprehension. It is necessary, of course, to have books available covering a wide variety of subject matter and of suitable difficulty. Arrangements can usually be made to borrow an appropriate collection of books from the school library or from a public library; librarians are ordinarily glad to cooperate with a teacher. In many schools, periods can be provided during which the pupils are allowed to browse through the library shelves. It is usually advisable to provide some guidance in the choice of books, as without it some of the pupils will make inappropriate selections and lose interest. Reports on books should not be lengthy and detailed; a one-paragraph written report or an oral report usually suffices. The teacher employing

¹⁴ J. J. Brooks, *Helping the Slow Reader*, *English Journal*, vol. 24, 1935, 669-671.

free reading must always keep in mind that the success of the method depends on the extent to which it builds more favorable attitudes toward reading and gets the pupils to read more.

Free reading does not provide a complete and well rounded reading program, but must be supplemented by other activities. The programs of Dolch and Dean, described above, suggest ways in which free reading can be combined with training in word recognition, vocabulary enrichment, and oral reading. During a free reading period the teacher has time for interviews and special remedial work with individual pupils. Above the primary grades there should be provision for such activities as timed exercises for the improvement of speed, training in the location of information, and specific practice in varied kinds of work-type reading. These can be, and usually are, conducted with the whole class. A few more plans in which free reading is combined with other procedures will now be considered.

Witty and Kopel¹⁵ have worked out a program in Evanston that has, as its major feature, silent reading periods in which each pupil's reading is carefully chosen for him by the teacher. A careful case study of every child, including a survey of his reading skills, background, and interests, is the basis for individualized assignments. A half hour a day is set aside as a special help period for poor readers, while the rest of the class is engaged in silent reading. Drill and practice exercises in which all participate are used occasionally. Major stress is placed on free silent reading, checked by brief written reports, but the development of study skills is given some attention.

Ansley has reported a program used with an oppor-

¹⁵ P. A. Witty and D. Kopel, *Motivated Remedial Reading: the Interest Factor*, *Educational Administration and Supervision*, vol. 22, 1936, 1-19.

tunity class at the tenth grade level which combined extensive reading with remedial exercises.¹⁶ All of the pupils were two or more years below grade in reading ability, the majority had I.Q.s below 100, and all had racial and economic handicaps. The extensive reading program started with a survey and discussion of magazines in the classroom and library. The pupils read articles or stories they liked and wrote brief impressions on cards. A record was kept on a large chart of the reading done by each pupil. After four weeks, thirty short, easy novels were placed in the classroom. The pupils chose the ones they wanted to read and wrote reports on them. In four weeks, nearly all of the pupils read between three and six books. At the same time, the class used the *McCall-Crabbs* and *McCall-Cook-Norvell* work-books, completing 90 exercises in the former and keeping individual progress charts. Individual conferences were held during silent reading periods in which the special difficulties of individual pupils were treated. The average gain, as measured by the Gates tests, was 2.5 years. A similar group given the regular program (unfortunately not described) made one year less gain during the same period of instruction.

A plan for teaching reading to ninth grade classes has been reported by Jacobson and Van Dusen,¹⁷ who tried it out with five classes, four of which were retarded in reading. There were four phases to the program, with the emphasis on the different phases varied somewhat according to the amount of retardation. Silent reading of a wide range of easy material occupied part of the time in practically every class meeting; many forms of motivation were employed to increase interest in this. One les-

¹⁶ M. L. Ansley, Extensive Remedial Reading, *English Journal*, vol. 25, 1936, 121-123.

¹⁷ P. B. Jacobson and E. C. Van Dusen, Remedial Instruction in Reading in the Ninth Grade, *School Review*, vol. 38, 1930, 142-146.

son from a *McCall-Crabbs* work-book was completed each day, and weekly progress records were posted. A study-type reader was employed, the time devoted to this ranging from six to twenty-three weeks in different classes. Finally, the grammar and literature of the required course of study was taken up in all but the lowest class. They report an average gain of 2.1 years from this reading program. As compared to the other programs described above, this one represents greater emphasis on work-type reading and somewhat less emphasis on free reading.

In some programs free reading plays a subordinate part. A regular course of study is drawn up, with a number of objectives, such as enlarging vocabulary, selecting the main idea, increasing speed, etc., made the basis of units of study. These objectives are taken up in turn, with emphasis placed on each for a period of from one to several weeks. A plan of this sort has been reported by Traxler.¹⁸ The reading of a retarded class in the seventh grade was organized around eight major objectives: developing reading interests, reading to follow directions, learning to find facts, skimming, identification of divisions in long selections, and building power to interpret meaning. A pre-test was given before each unit, to determine how much time should be spent on that kind of reading skill. Free silent reading occupied part of most periods, but major emphasis was placed on the exercises in which the whole class participated. This kind of plan is easy to carry out at the secondary school level, since there are several good textbooks designed to be used as the basis for class work of the sort stressed in it.

Quite different from the plans described above is the kind of procedure advocated by Cole.¹⁹ It is based on

¹⁸ A. E. Traxler, *Group Corrective Reading in the Seventh Grade — An Experiment*, *School Review*, vol. 41, 1933, 519-530.

¹⁹ Luella Cole, *The Improvement of Reading* (Farrar and Rinehart, 1938).

the use of a large number of lessons, prepared in advance by the teacher. Directions are given by Cole for constructing exercises for increasing speed, developing vocabulary, and improving comprehension. The pupils are supposed to work individually or in pairs (one testing the other) through a graded series of exercises in each phase of reading in which they are weak. The remedial reading classroom is conceived as a laboratory in which each pupil is working on a different set of problems. This is definitely a drill program ; motivation depends on arousal and satisfaction of the pupil's desire to improve rather than on the intrinsic interest of appealing material.

These are not the only plans for individualizing the teaching of reading that have been devised, but they serve to illustrate the variety of methods that have been tried. They range from completely individualized methods to plans in which individualized reading plays a subordinate part, and from a complete reliance on free silent reading to major emphasis on work-type exercises. An adequate description of any one of these plans would take many pages, so that limitations of space have made it impossible to present more than a brief sketch of each plan. For more complete descriptions the reader should consult the original reports.

III. SOME GENERAL CONSIDERATIONS

There is no one plan for teaching reading that is ideally suited to meet the needs of all teachers. Classes of pupils differ in mental ability, in background, in previously acquired skill in reading, and in the amount of variation within the class. Materials also differ ; some teachers have nothing to use except one set of readers, while others are provided with extensive and varied instructional material. Finally, teachers themselves are

unlike in many significant ways—in amount and kind of training, in resourcefulness, in energy, in temperamental characteristics. A method which works well with one teacher may be very difficult for another to apply effectively. The best program for a particular teacher to follow is one which is adapted to his pupils, makes efficient use of his materials, and is suited to his abilities as a teacher.

There are, however, certain general principles which should be incorporated into any method of teaching reading. While specific applications may and should differ according to circumstances, these principles are fundamentally important and provide a basis for evaluating the probable effectiveness of any plan.

1. Reading must be made an enjoyable activity. Methods which conceive reading narrowly as a collection of word recognition and comprehension skills to be taught by drill methods often fail to achieve this important goal. If pupils are to develop a genuine liking for reading, provision must be made to encourage large amounts of silent reading in materials which are interesting and of suitable difficulty. Every reading plan should try to build up the habit of reading for fun.

2. Systematic training must be given in the mastery of specific reading skills. In the primary grades much emphasis has to be placed on the acquisition of a fundamental reading vocabulary, on the development of accuracy and independence in word recognition, and on reading for meaning. Above the primary level attention should be given to the continued expansion of vocabulary and to the mastery of the many varied skills that are required in work-type reading and study.

3. A good reading program is balanced and contains varied activities. The relative emphasis to be placed on silent and oral reading, on specific drills and unsupervised reading, on recreational and informational reading, naturally differs according to local conditions. A program which emphasizes any one phase of reading to the virtual exclusion of all others, however, is practically certain to produce a corresponding lack of balance in the reading abilities of the pupils.

4. Provision must be made for individual differences. Pupils differ widely in every significant trait that can be observed. An effective plan of teaching reading must take account of variations in intelligence, in maturity, in interest, and in the presence or absence of handicaps to learning. If a teaching method is to succeed with all pupils it must be flexible enough to give different pupils the kinds of instruction that they need.

5. Special attention must be given to pupils whose reading is below normal. Every teacher should be alert to notice the difficulties of individual children, and should arrange his teaching so as to leave time for giving these pupils the assistance they need. It does not matter very much whether this assistance is given in regular class periods or before or after school, individually or in small groups, by the regular teacher or by a special remedial teacher, so long as it is based on an intelligent diagnosis of his needs and helps to overcome his difficulties.

There is a tendency on the part of some to think of diagnostic and remedial work as a mysterious specialty that can be carried on only by trained experts. The day is coming when every teacher will be expected to in-

clude remedial work as a normal part of his duties. As teachers become more proficient in providing for individual differences and in correcting difficulties when they first appear, severe cases of reading disability will become progressively rarer, and the general level of proficiency in reading will be raised.

APPENDIX A

AN ALPHABETICAL LIST OF TESTS MENTIONED IN THIS VOLUME

In the following list, pertinent information is given about the tests that have been mentioned in the body of the book. When the number of forms is not indicated there is only one form. The prices of manuals and other accessory materials have been listed only when these materials are not included with packages of tests. The prices given are publishers' list prices, and are subject to change without notice.

ARMY ALPHA (Revised)

Older children and adults. Forms A, B, 5, 7. General intelligence test, requiring reading. Time, 25-40 min. \$5.00 for 100 copies; specimen set, \$.30. (Psychological Corp.)

ARTHUR POINT SCALE OF PERFORMANCE (G. Arthur)

A non-language performance scale for measuring intelligence. Complete materials, \$62.50. (Stoelting, 1925)

BETTS READY TO READ TESTS (E. A. Betts)

Visual Survey, including Telebinocular and materials for testing visual sensation and perception, \$85.00.

Clinic Service, including vision tests, reading readiness test materials, and test of binocular reading skill, \$134.50. (Keystone View Co., 1934-36)

CALIFORNIA TEST OF MENTAL MATURITY (E. T. Sullivan, W. W. Clark, E. W. Tiegs)

Pre-primary series, kindergarten -1; *Primary* series, grades 1-3; *Elementary* series, grades 4-8; *Intermediate* series, grades 7-10; *Advanced* series, 9-Adult. Diagnostic group intelligence test. Language and non-language situations are used in testing memory, attention, orientation in spacial relations, reasoning abilities and vocabulary. Time, 90 min. in two sessions. \$1.25 for 25 copies; specimen set \$.25. (California Test Bureau, 1936)

CHAPMAN-COOK SPEED OF READING TEST (J. C. Chapman, S. A. Cook)

Grades 4-8, Forms A, B. Measure of rate of reading. Time, 2½ min. \$.40 for 25 copies; specimen set, \$.10. (Educational Test Bureau, 1923)

CHICAGO READING TESTS (M. D. Englehart, T. G. Thurstone)

Test B, Grades 2-4, Forms 1, 2. Measures comprehension of words, sentences, paragraphs, and rate. Time, 42 min. \$1.00 for 25 copies.

Test C, Grades 4-6, Forms 1, 2. Measures comprehension of words, sentences, paragraphs, maps, graphs, and rate. Time, 45 min. \$1.00 for 100 copies.

Test D, Grades 6-8, Forms 1, 2. Similar in make-up to *Test C*. Time, 45 min. \$1.00 for 25 copies. (Hale, 1938)

CORNELL-COXE PERFORMANCE ABILITY SCALE (E. L. Cornell, W. W. Coxe)

An individual performance scale of mental ability. Manual \$1.50. Record Blanks, \$.90 for 25 copies. Complete test material, \$26.95. (World, 1934)

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DETROIT BEGINNING FIRST GRADE INTELLIGENCE TEST, Revised (A. M. Engel, H. J. Baker)

A non-reading intelligence test for children entering the first grade. No time limit, but it takes about 30 min. to give the test. \$1.10 for 25 copies; specimen set, \$.10. (World, 1937)

DETROIT ADVANCED FIRST GRADE INTELLIGENCE TESTS (H. J. Baker)

Suitable for children who have completed two or three months of first-grade work up to and including those in the low second grade. Does not involve reading. \$1.10 for 25 copies; specimen set, \$.10. (World, 1928)

DETROIT PRIMARY INTELLIGENCE TEST (H. J. Baker)

Grades 2-4. Forms C, D. A group intelligence test for primary children; does not require reading ability. Time, 30-35 min. \$3.00 for 100 copies; specimen set, \$.15. (Public School, 1924)

DETROIT READING TESTS (C. M. Parker, E. A. Waterbury)

Series of four tests for grades 2-9. Each test contains 24 items based on the reading of 12 paragraphs. Test 1, Forms A, B; Test 2, Forms A, B, C; Test 3, Forms A, B, C, D; Test 4, Forms A, B, C, D. Time, 8, 7, 6, 5 min. respectively for Tests 1 to 4. \$.75 for 25 copies; specimen set, \$.25. (World, 1927)

DETROIT WORD RECOGNITION TEST (E. F. Oglesby)

Grades 1-2, Forms A, B, C, and D. A group test in reading for measuring the ability of pupils in the beginning stages. Time, 4 min. \$.75 for 25 copies; specimen set, \$.10. (World, 1924)

DOLCH-GRAY BASIC READING TESTS (E. W. Dolch, W. S. Gray)

Word-Recognition Series. First grade, Tests 1, 2, and 3. No time limit. Unstandardized \$24 for 40 copies.

Word-Attack Series. First and second grades, Tests 1, 2, and 3. Success in reading unfamiliar words indicates adequacy of child's method of attack. No time limit. Unstandardized. \$24 for 40 copies. (Scott, 1935)

DURRELL ANALYSIS OF READING DIFFICULTY (D. D. Durrell)

For individuals with reading ability below grade 7. Material consists of a series of standardized word lists and reading selections, a quick exposure device (Tachistoscope) with accompanying test cards, and an individual record blank for recording results. Time, 45-50 min. \$1.50 for 25 individual record blanks. Reading Paragraphs, \$.50 a copy; tachistoscope and cards, \$.50 a copy; manual of directions, \$.50 a copy. An examiner's kit containing 5 individual record blanks, 1 tachistoscope, 1 reading paragraphs, and 1 manual, is \$1.65. (World, 1937)

DURRELL-SULLIVAN READING CAPACITY AND ACHIEVEMENT TESTS (D. D. Durrell, H. B. Sullivan)

Reading Achievement Test, Intermediate. Grades 3-6. Form A. Measures word meaning and paragraph meaning, optional tests of spelling and written recall. Time, 30-45 min. \$1.25 for 25 copies; specimen set, \$.30.

Reading Capacity Test, Intermediate. Group test of ability to comprehend spoken language. Does not involve reading. Parallel in content to the *Reading Achievement Test*. Time, 30-40 min. \$1.10 for 25 copies; specimen set, \$.25. Specimen set of Achievement and Capacity Tests, \$.45.

Primary Test. Grades 2 and 3. One form. Includes both Capacity and Achievement measures, made up of the easier portions of the Intermediate tests. \$1.50 for 25 copies; specimen set, \$.20. (World, 1937, 1938)

GATES READING DIAGNOSIS TESTS (A. I. Gates)

These provide separate measures for oral context, word pronunciation techniques, word recognition techniques, visual perception, and supplementary tests. There are also 4 sets of cards for tests in Associative Learning, \$1.30. Test folder, \$.15. Record blank, \$.15. Directions for administering and scoring are given in A. I. Gates, "The Improvement of Reading," Rev. Ed., 1935. (Bureau of Publications, 1933)

GATES READING SURVEY (A. I. Gates)

Grades 3-10, Forms 1, 2. Provides separate measures for vocabulary, level of comprehension, speed of reading, and accuracy of comprehension. Time, 60-90 min. \$.25 for 100 copies; specimen set, \$.20. (Bureau of Publications, 1939)

GATES SILENT READING TESTS (A. I. Gates)

Primary Series. Grades 1 and 2. Type 1 (Word Recognition); Type 2 (Sentence Reading); Type 3 (Paragraph Reading). Forms 1, 2, and 3 of each type. Time for each type, 15-20 min. Any of the three types, \$.20 for 100 copies; Manual, \$.15; specimen set, \$.25.

Grades 3 to 8 Series. Type A (Reading to Appreciate the General Significance of a Paragraph); Type B (Reading to Predict the Outcome of Given Events); Type C (Reading to Understand Precise Directions); Type D (Reading to Note Details). Forms 1, 2, and 3 of each type. Time for each type, 6-8 min. Any of the four types, \$.20 for 100. Manual, \$.15; specimen set, \$.15. (Bureau of Publications, 1926)

GRAY STANDARDIZED ORAL READING CHECK TESTS (W. S. Gray)

There are four sets: Set I for pupils of grades 1 and 2; Set II for grades 2 to 4; Set III for grades 4 to 6, and Set IV for grades 6 to 8. These tests are designed to measure rate and accuracy of oral reading and to secure information which will aid in determining the specific nature of the difficulties of poor readers. Time of each test, 1-3 min. \$1.50 for 100 copies (20 copies of each of the 5 tests of one set); specimen set, \$.50. (Public School)

GRAY STANDARDIZED ORAL READING PARAGRAPHS TEST (W. S. Gray)

Grades 1-8. An individual test consisting of a series of standardized paragraphs arranged in order of increasing difficulty, to be read aloud. It is scored in terms of combined speed and accuracy. Time, 3-8 min. \$1.00 for 100 copies; specimen set, \$.06. (Public School, 1915)

HENMON-NELSON TESTS OF MENTAL ABILITY (V. A. C. Henmon, M. J. Nelson)

(a) Grades 3-8, Forms A, B, and C. (b) Grades 7-12, Forms A, B, and C. (c) College, Forms A and B. Group intelligence tests requiring reading ability. Each test consists of 90 items arranged in order of increasing difficulty. \$.75 for 25 copies; specimen set, \$.15. (Houghton, 1931, 1932)

HERRING REVISION OF THE BINET-SIMON TESTS (J. P. Herring)

An individual examination of mental ability based on the original Binet-Simon tests. There are 5 tests of different lengths. Examination manual, \$1.50; Individual Record Cards, \$1.00 for 25 copies. (World, 1922)

HOLLEY SENTENCE VOCABULARY SCALES (C. E. Holley)

Grades 3 to 8, Series 3A; Series A, Form 2; grades 7 to 12, Series 3B. Measures reading vocabulary. \$.80 for 100 copies; specimen set, \$.06. (Public School, 1919)

INGLIS TEST OF ENGLISH VOCABULARY (A. Inglis)

High school and college, Forms A, B, and C. Measures vocabulary. Time, 30 min. \$1.00 for 30 copies. (Ginn, 1923)

INGRAHAM-CLARK DIAGNOSTIC READING TESTS (J. E. Ingraham, W. W. Clark)

Primary Test, Grades 1-3, Forms 1, 2. Two parts, measuring vocabulary and comprehension. Several sub-tests in each part. Time, 40 min. \$2.00 for 50 copies; specimen set, \$.25.

Intermediate Test, Grades 4-8, Forms 1, 2. Similar in organization to the *Primary* test. Time, 60 min. \$2.00 for 50 copies; specimen set, \$.25. (Calif. Test Bureau, 1929)

IOWA SILENT READING TESTS: NEW EDITION (H. A. Greene, A. N. Jorgensen, V. H. Kelley)

Elementary Test, grades 4-8. *Advanced Test*, high school and college. Forms AM and BM, each test. Ten sub-tests, measuring general and technical vocabulary, rate, sentence and paragraph comprehension, and location of information. Time, Elementary, 49 min.; Advanced, 45 min. Elementary, \$1.25 for 25 copies; specimen set, \$.25. Advanced, \$1.60 for 25 copies; specimen set, \$.35. There are older forms of these tests, not listed in the publisher's current catalogue. (World, 1929)

KUHLMANN-ANDERSON INTELLIGENCE TESTS (F. Kuhlmann, R. Anderson)

There are 39 tests arranged in 9 groups, adapted to the different school grades: Grade I (First Semester); Grade I (Second Semester); Grade II; Grade III; Grade IV; Grade V; Grade VI; Grades VII, VIII; Grade IX — Maturity. A diagnostic group intelligence test. \$1.25 for 25 booklets, any one grade. Manual, \$.40; specimen set, \$.15. (Educational Test Bureau, 1927)

KUHLMANN TESTS OF MENTAL DEVELOPMENT (F. Kuhlmann)

An intelligence test for individual examinations, similar in scope to the Binet tests. Range, 4 mos. to maturity. Complete testing outfit, \$6.55. Manual, \$2.00. (Educational Test Bureau, 1939)

LEE-CLARK READING READINESS TEST (J. M. Lee, W. W. Clark, D. M. Lee)

A group test designed to predict success in first-grade reading. Time, 15 min. \$.75 for 25 copies; specimen set, \$.15. (Calif. Test Bureau, 1931)

MANWILLER WORD RECOGNITION TEST (C. E. Manwiller)

Grades 1 and 2, Forms A and C. For each word there are four pictures from which the child must choose the one which illustrates the word. Time, 15 min. \$.75 for 25 copies; specimen set, \$.10. (World, 1935)

METROPOLITAN READINESS TESTS (G. H. Hildreth, N. L. Griffiths)

Test for children of beginning school age to determine readiness for reading and number work. Form A. Time, 70 min. \$1.20 for 25 copies; specimen set, \$.15. (World, 1933)

METROPOLITAN READING TESTS (R. D. Allen, H. H. Bixler, W. L. Connor,

F. B. Graham, G. H. Hildreth, J. S. Orleans)

Primary Reading Test, Grades 1-3, Forms A, B, and C. Contains six subtests measuring word recognition, vocabulary, sentence and paragraph comprehension. Time, 60 min. \$1.25 for 25 copies; specimen set, \$.15.

Intermediate Reading Test, Grades 4-6, Forms A, B, and C. Two parts, measuring vocabulary and paragraph meaning. Time, 45 min. \$1.00 for 25 copies; specimen set, \$.10.

Advanced Reading Test, Grades 7 and 8, Forms A, B, and C. Two parts, measuring vocabulary and paragraph meaning. Time, 45 min. \$1.00 for 25 copies; specimen set, \$.10.

These tests are also available as parts of the Metropolitan Achievement Tests. Supervisor's Manual, all tests, \$.25. (World, 1933-35)

MICHIGAN SPEED OF READING TEST (E. B. Greene)

Grades 6-College; Forms 1 and 2. Time, 7 min. \$1.00 for 25 copies; specimen set, \$.25. (E. B. Greene, Ann Arbor, Michigan, 1932)

MINNESOTA READING EXAMINATION FOR COLLEGE STUDENTS (M. E. Haggerty, A. C. Eurich)

Forms A, B. Designed to measure vocabulary and paragraph comprehension. Time, 50 min. \$6.00 for 100 copies; specimen set \$.35. (Univ. of Minn. Press, 1930, 1935)

MINNESOTA SPEED OF READING TEST FOR COLLEGE STUDENTS (A. C. Eurich)

High School and College, Forms A and B. Time, 6 min. \$2.75 for 100 copies; specimen set, \$.35. (University of Minnesota Press, 1931)

MODERN SCHOOL ACHIEVEMENT TESTS (A. I. Gates, P. R. Mort, P. M. Symonds, R. B. Spence, G. S. Craig, De F. Stull, R. Hatch, A. I. Shaw, and L. B. Krieger)

Grades 3-8, Forms 1 and 2. The complete battery comprises 10 tests in reading and other subjects. The short form comprises only the skill subjects. Reading section contains untimed paragraph comprehension test and rate test. Complete test, \$7.55 for 100 copies. Short form, \$5.25 for 100 copies; specimen set, \$.15. (Bureau of Publications, 1931)

MONROE DIAGNOSTIC READING EXAMINATION (M. Monroe)

Includes 12 small charts comprising the Iota and Word Discrimination tests, record blanks and directions for giving supplementary tests. Charts, \$3.75 a set. Record blanks, \$6.75 for 100 copies. Manual, \$1.00. (Stoelting, 1928)

MONROE READING APTITUDE TESTS (M. Monroe)

First grade entrants. Includes visual, auditory, and motor control tests; tests of oral speed and articulation; and language tests. The group tests may be administered to 10 or 12 children at one time and require about 30-40 min. The individual items should be given to each child alone. Time for this, 10-15 min. \$1.00 for 25 copies; specimen set, \$.10. Test cards, \$.50. (Houghton, 1935)

MONROE STANDARDIZED SILENT READING TESTS, REVISED (W. S. Monroe)

Test I, grades 3-5; Test II, grades 6-8; Test III, Grades 9-12; Forms 1, 2 and 3 of each test. Separate measures for reading rate and comprehension

are provided. Time, 4 min. \$.80 for 100 copies; specimen set, \$.10. (Public School, 1920)

NATIONAL INTELLIGENCE TESTS (M. E. Haggerty, L. M. Terman, E. L. Thorndike, E. M. Whipple, R. M. Yerkes)

Grades 3-8, Scale A and Scale B; Forms 1, 2, and 3, each Scale. Group intelligence test requiring reading ability. Time, each scale, 20 min. \$1.25 for 25 copies; specimen set, \$.40. (World, 1920)

NELSON-DENNY READING TEST FOR COLLEGES AND SENIOR HIGH SCHOOLS (M. J. Nelson, E. C. Denny)

Grades 10-16, Forms A and B. Measures vocabulary and paragraph comprehension. Time, 30 min. \$1.65 for 25 copies, including answer sheets. Separate answer sheets, \$.75 for 25 copies; specimen set, \$.15. (Houghton, 1929)

NELSON SILENT READING TEST (M. J. Nelson)

Grades 3-8, Forms A and B. Measures vocabulary and paragraph comprehension. Time, 30 min. \$1.65 for 25 tests and 25 answer booklets; specimen set, \$.15. (Houghton, 1929)

NEW STANFORD READING TEST (T. L. Kelley, G. M. Ruch, L. M. Terman)

Grades 3-8, Forms V, W, X, Y, Z. Measures paragraph meaning and word meaning. Time, 35 min. Available also as part of the New Stanford Achievement Tests. \$.90 for 25 copies; specimen set, \$.10. (World, 1929)

OTIS GROUP INTELLIGENCE SCALE: PRIMARY (A. S. Otis)

Grades 1-4, Forms A and B. Does not involve reading. Time, 40 min. \$1.10 for 25 copies; specimen set, \$.15. (World, 1919)

OTIS SELF-ADMINISTERING TESTS OF MENTAL ABILITY (A. S. Otis)

A group intelligence test requiring reading ability. The *Intermediate Examination* is designed for grades 4 to 9. The *Higher Examination* is for grades 9 to 12 and college. There are 4 equivalent forms for each examination, A, B, C, D. \$.90 for 25 copies; specimen set, \$.25. (World, 1922)

PINTNER-CUNNINGHAM PRIMARY TEST (R. Pintner, B. V. Cunningham)

Kindergarten-2A, Forms A and B. Group intelligence test. Does not require reading. A revision of the *Pintner-Cunningham Primary Mental Test*, which it replaces. Time, 25 min. \$1.25 for 25 copies; specimen set, \$.20. (World, 1939)

PINTNER-PATERSON PERFORMANCE SCALE: SHORT FORM (Manual of Directions by G. Hildreth, R. Pintner)

A non-language performance scale for measuring intelligence. Complete materials, \$66.10. (Stoelting) Manual, \$.50. (Bureau of Publications, 1937)

PRESSEY DIAGNOSTIC READING TESTS FOR GRADES 3 TO 9 (S. L. and L. C. Pressey)

Vocabulary and Paragraph Meaning Tests. Forms A and B. Time, vocabulary, 25 min., paragraph meaning, 25 min. \$2.20 for 100 copies.

Speed Test. Forms A and B. Time, 10 min. \$1.80 for 100 copies. (Public School, 1929)

PRESSEY DIAGNOSTIC TESTS IN FUNDAMENTAL READING HABITS (S. L. and L. C. Pressey)

A test for grade 2, a test for grades 3 and 4, and a test for grades 5 and

6, which may also be used in grades 7 and 8. These are individual tests for measuring eye movements, vocalization and vocabulary. \$1.00 for 100 copies; specimen set, \$.30. (Public School, 1929)

PRESSEY DIAGNOSTIC VOCABULARY TEST FOR GRADES 1A TO 3A (S. L. and L. C. Pressey)

Forms A and B. Measures size of reading vocabulary during the first three grades. Time, 20 min. \$1.00 for 100 copies; specimen set, \$.10. (Public School, 1929)

PROGRESSIVE READING TESTS (E. W. Tiegs and W. W. Clark)

Primary, grades 1-3, Forms A, B, and C. *Elementary*, grades 4-6, Forms A, B, C. *Intermediate*, grades 7-9, Forms A, B, and C. *Advanced*, High School and Junior College, Forms A and B. Each test contains 6 or 7 subtests measuring different phases of reading vocabulary and comprehension. \$.75 for 25 copies; specimen set, \$.15. Available also as parts of the *Progressive Achievement Tests*. (California Test Bureau, 1934-36)

PUBLIC SCHOOL ACHIEVEMENT TEST IN READING (J. S. Orleans, Forms 1 and 2;

T. L. Torgerson, Forms 3 and 4)

Grades 3-8. Forms 1 and 2 measure ability to comprehend sentences, paragraphs and poems. Forms 3 and 4 are designed to measure ability to select the central thought in a paragraph and to answer questions of detailed fact. Time, Form 1 or 2, 45 min.; Form 3 or 4, 35 min. \$2.00 for 100 copies; specimen set, \$.10. (Public School, 1928-31)

READING READINESS TEST (W. W. Clark)

For first grade entrants. Measures informational background and perception of similarities and differences. Free to users of *Alice and Jerry* books; otherwise, \$.02 a copy (Row, Peterson, 1936)

SANGREN-WOODY READING TEST (P. V. Sangren and C. Woody)

Grades 4-8, Forms A and B. Provides separate measures for word meaning, rate, fact material, total meaning, central thought, following directions and organization. Time, 27 min. \$1.25 for 25 copies; specimen set, \$.15. (World, 1926)

STANFORD-BINET EXAMINATIONS

Stanford Revision of the Binet-Simon Tests (L. M. Terman)

An individual general intelligence test. Condensed guide, \$1.00. Record Booklets \$2.00 for 25.

Revised Stanford-Binet Scale (L. M. Terman and M. Merrill)

Two comparable forms, L and M, are available. Manual, \$2.25. Record Booklets, \$2.00 for 25. Test material, \$8.00, each form. (Houghton, 1916, 1937)

STEVENS READING READINESS TEST (E. N. Stevens)

A test for first grade entrants, designed to measure visual discrimination, ability to follow directions, comprehension, recall, and ability to work from left to right. Time, several short periods on successive days. \$.04 a copy in quantities of 25 or more. Teachers Manual, \$.25. (American Educ. Press, 1937)

STONE-GROVER CLASSIFICATION TEST FOR BEGINNERS IN READING (C. R. Stone and C. C. Grover)

For first-grade entrants. Measures perception of similarities and differences. Time, 30 min. \$.05 a copy. Manual, \$.05. (Webster, 1933)

STONE NARRATIVE SILENT READING TESTS (C. R. Stone)

A test for grades 3 and 4, a test for grades 5 and 6, a test for grade 7, and a Junior High School test. These tests are designed to measure rate and comprehension of reading a long, continued selection. Time, 40-60 min. \$4.00 for 100 copies; specimen set, \$.20. (Public School, 1922)

TERMAN GROUP TEST OF MENTAL ABILITY (L. M. Terman)

Grades 7-12, Forms A and B. Group intelligence test requiring reading ability. Time, 27 min. \$1.20 for 25 copies; specimen set, \$.20. (World, 1920)

TRAXLER HIGH SCHOOL READING TEST (A. E. Traxler)

Grades 10-12, Forms 1 and 2. Measures comprehension of natural and social science material, and rate. Time, 30 min. \$1.50 for 25 copies; specimen set, \$.25. (Public School, 1938)

TRAXLER SILENT READING TEST FOR GRADES 7 TO 10. (A. E. Traxler)

Forms 1 and 2. Separate measures are provided for speed of reading, comprehension, word meaning, and paragraph meaning. Time, 50 min. \$1.50 for 25 copies; Teacher's Handbook, \$.15; specimen set, with Handbook, \$.30. (Public School, 1934)

TYLER-KIMBER STUDY SKILLS TEST (H. T. Tyler and G. C. Kimber)

A test of proficiency in the location and extraction of information; for high school and college. No time limit. \$2.00 for 25 copies; specimen set, \$.15. (Stanford Univ. Press, 1938)

UNIT SCALES OF ATTAINMENT IN READING (M. J. Van Wagenen)

Grades I-XII are covered in a graded series of 9 tests. Forms A, B, and C. Measures paragraph comprehension. The test is not timed, but requires about 40 min. \$.75 for 25 copies; specimen set, \$.20. (Educ. Test Bureau, 1932)

VAN WAGENEN READING READINESS TEST (M. J. Van Wagenen)

First grade entrants, Forms A and B. An individual test. The functions measured are range of information, ability to see relations, vocabulary, word discrimination, memory span for ideas and ease of learning words. \$1.25 for 25 copies, including both forms; specimen set, \$.35. Manual of Directions, \$.30. (Educ. Test Bureau, 1932)

WHIPPLE'S HIGH SCHOOL AND COLLEGE READING TEST (G. M. Whipple)

Consists of a long, continuous selection, with questions embedded in it. Time, 10 min. \$3.00 for 100 copies; specimen set, \$.10. (Public School, 1926)

APPENDIX B

A GRADED LIST OF BOOKS FOR SUPPLEMENTARY READING

The list of books given below is intended to be helpful to teachers in the selection of books for supplementary reading. It may be used with normal readers, although it has been made up primarily with the needs of remedial teachers in mind. The books are arranged by grades, and alphabetically by author within each grade. The grade placement of each book indicates the *minimum* level of reading ability required for satisfactory reading of the book, in the opinion of the present writer. The intention has been to include only books which are interesting to retarded readers and which appeal to children two or more years older than the average child in the grade indicated. An asterisk (*) before the title of the book signifies that the book has been recommended as suitable for use with retarded readers at the junior or senior high school level in at least one of the sources consulted. As an illustration of the use of the list, suppose that one wants to select a book for a child who is twelve years old and has fourth grade reading ability. One would take the child's interests into consideration in choosing from the third and fourth grade lists.

This list was made up by comparing the ratings given in several of the existing book lists for children, including the *Children's Catalogue*, *The Right Book for the Right Child*, the *Graded List of Books for Children*, *Books Evaluated by Means of the Vocabulary Grade Placement Formula*, *Books and Instructional Materials Evaluated*, and "Choosing the Right Book"; these sources have been described on pp. 216-7. Except for a few recent ones, all of the books listed have been included in at least two of the sources, and the majority of the books have been specifically recommended for use with retarded readers, in one or more of them. Where the sources disagree concerning the difficulty of a book, the writer has used his own judgment in assigning it to a grade. Books that are part of graded series have not been included.

It will be noted that relatively fewer books are listed for the second and sixth grade levels than for the third, fourth, and fifth. There are actually few books at the second grade level that are really interesting to older pupils, and the brevity of the list given represents the actual state of affairs. The sixth grade list has been intentionally kept short, and is meant to indicate the kind of book suitable for this level rather than to be comprehensive. Most of the fiction books that are popular with junior high school pupils do not require more than fifth or sixth grade reading ability, and a comprehensive list of

fiction suitable for mildly retarded secondary school pupils would have run into hundreds of titles. There is a dearth of information about the actual difficulty of non-fiction books ordinarily used at the junior high school level, so that the non-fiction entries at the sixth grade level are also few in number. Since it is advisable to employ books for supplementary reading that are easy enough to be read with fluency, the listings at the third, fourth, and fifth grade levels should prove useful in secondary school remedial programs.

GRADE TWO

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Aldredge & McKee.	Wags and Woofie	Ginn
Bacon	*Turkey Tale	Oxford
Beaty and Allen .	On Our Farm	Saalfeld
Bjornson	*Happy Boy	Macmillan
Credle	*Down, Down the Mountain	Nelson
Deming	*Indians in Winter Camp	Laidlaw
Deming	Little Eagle	Laidlaw
Everson	Coming of the Dragon Ships	Dutton
Flack	Tim Tadpole and the Great Bull- frog	Doubleday
Hader	*Chuck-A-Luck and His Reindeer.	Houghton
Harter & McIntire.	Food	Follett
Huber	Skags the Milk Horse ...	Am. Book
La Rue	Fun Book	Macmillan
MacCarthy	*Billy and Jane and the Fireman ..	Whitman
Miller	Dean and Don at the Dairy	Houghton
Snedden	*Docas, the Indian Boy	Heath
Wells	*Beppo the Donkey	Doubleday
Wells	*Coco the Goat	Doubleday
Wells	*Zeke the Raccoon	Viking
Wiese	Liang and Lo	Doubleday
Wiese	Wallie the Walrus	Coward
Williamson	Lion Cub	Doubleday
Williamson	Baby Bear	Doubleday
Wood	*Great Sweeping Day	Longmans
Wright	Magic Boat	Ginn

GRADE THREE

Alden	Why the Chimes Rang and Other Stories	Bobbs
Andersen	Andersen's Fairy Tales	Appleton
Andrews	*Ten Boys Who Lived on the Road from Long Ago to Now	Ginn
Bailey	Indians	Follett
Baldwin	Fifty Famous Stories Retold	Am. Book
Baldwin	Old Greek Stories	Am. Book
Baldwin	*Robinson Crusoe for Children....	Am. Book

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Bianco	*Good Friends	Viking
Bontemps	*You Can't Pet a Possum	Morrow
Bronson	*Pollywoggle's Progress	Macmillan
Brooks	To and Again	Knopf
Brown	*Crazy Quilt: The Story of a Pie- bald Pony	Scribner
Brown	Piper's Pony	Scribner
Cannon	Pueblo Boy	Houghton
Coatsworth	*Boy with the Parrot	Macmillan
Coolidge & DiBona	*Story of Steam	Winston
Dalglish	*Choosing Book	Macmillan
D'Aulaire	*George Washington	Doubleday
D'Aulaire	Ola	Doubleday
DeLeeuw	Java Jungle Tales	Doubleday
Erleigh	In the Beginning	Doubleday
Everson	*Secret Cave	Dutton
Finger	*Tales from Silver Lands	Doubleday
Flack & Wiese	Story About Ping	Viking
Gall & Crew.....	*Ringtail	Oxford
Gay	*Pancho and His Burro	Morrow
Grey	*Rolling Wheels	Little
Hall	*Days Before History	Crowell
Hall	*Men of Old Greece	Little
Hall	Viking Tales	Rand
Harter	*Bread	Follett
Howard	Princess Runs Away	Macmillan
Howard	Sokar and the Crocodile	Macmillan
Hunt	*Little Girls with Seven Names ..	Stokes
James	*Young Cowboy	Scribner
Justus	Peter Pocket's Book	Doubleday
Lansing	Tales of Old England	Ginn
Lattimore	*Little Pear	Harcourt
Leaf	*Story of Ferdinand	Viking
Linderman	*Indian Lodge Fire Stories	Scribner
Lindman	Snipp, Snapp, Snurr and the Red Shoes	Whitman
Lofting	*Story of Dr. Doolittle	Stokes
Lofting	*Story of Mr. Tubbs	Stokes
Lorenzini	Pinocchio	Winston
Lynch	Magic Clothes-Pins	Houghton
Marcy	*Indians' Garden	Wagner
Mason	*Smiling Hill Farm	Ginn
Meigs	Wind in the Chimney	Macmillan
Meigs	*Wonderful Locomotive	Macmillan
Meigs	*Willow Whistle	Macmillan
Miller	Jimmie, the Groceryman	Houghton
Moderow et al	*Six Great Stories	Scott
Mohr et al	*Babylonia and Assyria	Rand
Mohr et al	*Days Before Houses	Rand
Mohr et al	*Egyptians of Long Ago	Rand

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Moon	*Chi-Wee	Doubleday
Moon	Nadita (Little Nothing)	Doubleday
Moon	*Tita of Mexico	Stokes
Morris	*Susan and Arabella, Pioneers	Little
Morse	*Creepers and Sliders	Follett
Mukerji	*Kari the Elephant	Dutton
O'Brien	*Byrd's Dogs	Rockwell
Orton	*Little Lost Pigs	Stokes
Orton	*Treasures in the Little Trunk	Stokes
Patch	Bird Stories	Little
Perkins	Farm Twins	Houghton
Perkins	*American Twins of 1812	Houghton
Perkins	*Dutch Twins	Houghton
Petersham	Auntie	Doubleday
Petersham	*Story Book of Coal	Winston
Petersham	*Story Book of Food	Winston
Petersham	*Story Book of Rice	Winston
Petersham	*Story Book of Ships	Winston
Purnell & Weather- wax	Talking Bird	Macmillan
Shannon	*Dobry	Viking
Simon	Lost Corner	Dutton
Snedden	*Leif and Thorkel	World
Snedeker	*Theras and His Town	Doubleday
Sperry	*One Day with Jambi in Sumatra.	Winston
St. Clair	*Max: the Story of a Little Black Bear	Harcourt
Tousey	*Cowboy Tommy's Roundup	Doubleday
Tousey	*Steamboat Billy	Doubleday
Warren	Robin Hood and His Merry Men.	Rand
Washburn	*Story of the Earth	Appleton
Watson	*Story of Bread	Harper
Wells	*Ali the Camel	Doubleday
Wiese	*Karoo, the Kangaroo	Coward
Wilder	Little House in the Big Woods ..	Harper

GRADE FOUR

Adams	*Vaino	Dutton
Alcott	*Little Men	Little
Allen	How and Where We Live	Ginn
Altsheler	*Forest Runners	Appleton
Altsheler	*Eyes of the Woods	Appleton
Bachellor	*Man for the Ages	Grosset
Bailey	*Seven Peas in a Pod	Little
Baldwin	*Stories of Don Quixote	American Book
Bannerman	Little Black Sambo	Stokes
Barrie	*Peter Pan and Wendy	Scribner
Bass	*Stories of Pioneer Life	Heath

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Bigham	*Mother Goose Village	Rand
Blackmore (adapted)	*Lorna Doone	Scott
Brink	*Caddie Woodlawn	Macmillan
Brown	In the Days of the Giants	Houghton
Brown	*John of the Woods	Houghton
Brown	*War Paint, an Indian Pony	Scribner
Burnett	*Secret Garden	Grosset
Bush	*Prairie Rose	Little
Caldwell	*Wolf the Storm Leader	Dodd
Cannon	*Pueblo Girl	Houghton
Carr	*Children of the Covered Wagon..	Crowell
Carroll	*Luck of the Roll and Go	Macmillan
Cervantes (adapted)	*Don Quixote of the Mancha	Dodd
Charnley	*Play the Game	Viking
Clark	Poppy Seed Cakes	Doubleday
Clemens	*Adventures of Tom Sawyer	Harper
Clemens	*Adventures of Huckleberry Finn..	Harper
Collier & Eaton ...	*Roland the Warrior	Harcourt
Colum	*Adventures of Odysseus and the Tale of Troy (Children's Homer)	Macmillan
Colum	*Children of Odin	Macmillan
Dalgleish	*Relief's Rocker	Macmillan
Dalgleish	*Roundabout	Macmillan
Dalgleish	*Smith and Rusty	Scribner
Dawes	*Stories of Our Country	Educ. Publ.
Dodge	*Hans Brinker, or the Silver Skates.	Ginn
Doone	*Nuvat the Brave	Macrae-Smith
Dupuy	*Odd Jobs of Uncle Sam	Heath
Eastman	*Indian Boyhood	Doubleday
Eliot	*Selected Stories from the Arabian Nights	Houghton
Enright	*Kinta : A Congo Adventure	Farrar
Fernald & Slocombe	*Scarlet Fringe	Longmans
Fogler	*Rusty Pete of the Lazy AB	Macmillan
Gag	*Tales from Grimm	Coward
Gale	*Katrina Van Ost and the Silver Rose	Putnam
Garbutt	*Timothy	Oxford
Gardiner & Osborne	*Good Wind and Good Water	Viking
Gask	*All About Animals from A-Z	Crowell
Gray	*Jane Hope	Viking
Griffis	Japanese Fairy Tales	Crowell
Grimm (ed. by Lowe)	Grimm's Fairy Tales	Winston
Hader	Midget and Bridget	Macmillan
Hader	*Picture Book of Travel	Macmillan
Hawsworth	*Clever Little People with Six Legs	Scribner
Hawthorne	Wonder Book for Boys and Girls	Houghton

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Hayes	*Little House on Wheels	Little
Heffernan et al. . .	*Desert Treasure	Harr Wagner
Hess	*Buckaroo	Macmillan
Hess	*Sandra's Cellar	Macmillan
Hewes	*Glory of the Seas	Knopf
Hill	Rudi of the Toll Gate	Macmillan
Hine	*Men at Work	Macmillan
Holling	*Book of Cowboys	Platt-Munk
Holling	*Book of Indians	Platt-Munk
Hugo (adapted) . .	*Les Miserables	Liveright
James	*Smoky, the Cow Horse	Scribner
Johnson	*Tally-Ho	Harcourt
Jones	*How the Derrick Works	Macmillan
Keith et al.	*Boats	Follett
Kipling	*Jungle Book	Doubleday
Kipling	*Jungle Book (Second)	Doubleday
Kipling	Just So Stories	Doubleday
Lacey	Light Then and Now	Macmillan
Lang	*Jack, the Giant Killer	Longmans
Lang	Old Friends Among the Fairies....	Longmans
Lee	Pablo and Petra	Crowell
Lent	Full Steam Ahead	Macmillan
Lent	Wide Road Ahead	Macmillan
McClelland	*Young Decorators	Harper
Major	*Bears of Blue River	Macmillan
Malkus	*Dragon Fly of Zuni	Harcourt
Meador	*Red Horse Hill	Harcourt
Meigs	*Swift Rivers	Little
Miller	*True Bear Stories	Rand
Morley	*Donkey John of the Toy Valley ..	McClurg
Morse	Wild Animals of North America in Picture Strip	Rockwell
Mukerji	*Hari, the Jungle Lad	Dutton
Nida	*Pilots and Pathfinders	Macmillan
Olcott	Wonder Garden	Houghton
Ollivant	*Bob, Son of Battle	Doubleday
Pease	*Jinx Ship	Doubleday
Petersham	*Story Book of Oil	Winston
Petersham	*Story Book of Wheat	Winston
Petersham	*Story Book of Trains	Winston
Petersham	*Story Book of Sugar	Winston
Petersham	*Story Book of Wheels	Winston
Phelps	Nikita	Harcourt
Pyle	*Men of Iron	Harper
Ramee	Nurnberg Stove	Lippincott
Reed	*And That's Why	Harcourt
Retold from St. Nicholas	*Lion and Tiger Stories	Appleton
Robinson	*Little Lucia and Her Puppy	Dutton
Sabin	*Opening the Iron Trail	Crowell

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Sawyer	*Tono Antonio	Viking
Scales	*Boys of the Ages	Ginn
Seredy	*Good Master	Viking
Sewell	*Black Beauty	Macmillan
Seymour	*Boy's Life of Kit Carson	Appleton
Sickles	*In Calico and Crinoline	Viking
Singmaster	*Swords of Steel	Houghton
Skinner	*Becky Landers	Macmillan
Spyri	*Heidi	Lippincott
Spyri	*Moni the Goat Boy	Ginn
Sterne	*No Surrender	Duffield
Stevenson	*Kidnapped	Winston
Stevenson	*Treasure Island	Winston
Stone & Fickett ...	*Famous Days in the Century of Invention	Heath
Stong	*Farm Boy	Doubleday
Stong	*Honk: the Moose	Dodd
Sugimoto	*Daughter of the Samurai	Doubleday
Tee-Van	*Red Howling Monkeys	Macmillan
Thayer	*Jinny, Story of a Filly	Farrar
Thomas	*Paulo in the Chilean Desert ...	Bobbs
Thorndike Library.	Andersen's Fairy Tales, Arabian Nights, A Boy of the First Em- pire, Pinocchio, Robinson Cru- soe, Christmas Carol, Hans Brinker, Wonder Book, Little Lame Prince, King of the Golden River, Black Beauty Heidi	Appleton
Travers	*Mary Poppins	Reynal
Tousey	*Jerry and the Pony Express	Doubleday
Vestal	*Happy Hunting Grounds	Lyons
Verpilleux	*Picture Book of Houses	Macmillan
Warren	King Arthur and His Knights ...	Rand
Wheeler	*Mozart the Wonder Boy	Dutton
White	*Where is Adelaide?	Houghton
Whitney	White Tiger	Reilly
Wiese	*Chinese Ink Stick	Doubleday
Wiggins	*Birds' Christmas Carol	Houghton
Wilder	*Farm Boy	Harper
Wilder	*Little House on the Prairie	Harper
Williams-Ellis ...	*Men Who Found Out	Coward-McCann
Wilson	*White Indian Boy	World
Wilson	Myths of the Red Children	Ginn

GRADE FIVE

Alcott	*Jo's Boys	Little
Alcott	*Little Women	Little

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Altsheler	*Horsemen of the Plains	Grosset
Altsheler	*Young Trailers	Appleton
Baker	*Shasta of the Wolves	Dodd
Bowman	*Pecos Bill	Whitman
Braine	*Merchant Ships and What They Bring Us	Dutton
Brink	*Mademoiselle Misfortune	Macmillan
Brown	*Lonesomest Doll	Houghton
Bullen	*Cruise of the Cachelot	Appleton
Canfield	*Understood Betsy	Grosset
Chidsey	*Rustam, Lion of Persia	Minton
Clemens	*Prince and the Pauper	Harper
Collins	*Boys' Airplane Book	Stokes
Cottler & Jaffe ...	*Heroes of Civilization	Little
Cody	*Adventures of Buffalo Bill	Harper
Craik	*Little Lame Prince	Lippincott
Dumas	*Three Musketeers	Macmillan
Fernald & Slocombe	*Scarlet Fringe	Longmans
Gimmage	*Picture Book of Ships	Macmillan
Gregor	*Running Fox	Appleton
Grey	*King of the Royal Mounted	Whitman
Hamilton	*Boy Builder	Dodd
Hamilton	*Handicraft for Girls	Dodd
Hooker	*Star, the Story of an Indian Pony	Doubleday
Hough	*The Covered Wagon	Houghton
Hunt	*Susan, Beware!	Stokes
Jackson	*Romona	Little
Keith	*Coal	Follet
Kyle	*Apprentice of Florence	Houghton
Lamprey	*All the Ways of Building	Macmillan
London	*Call of the Wild	Macmillan
Malot	*Nobody's Boy	Cupples
Medary	*Prairie Anchorage	Longmans
Melville (adapted).	*Moby Dick	Scribners
Morrow & Swartman	*Ship's Monkey	Morrow
Muir	*Stickeen	Houghton
Nida	*Following the Frontier	Macmillan
Nordhoff & Hall ..	*Falcons of France	Little
Pease	*Ship Without a Crew	Doubleday
Persky	*Adventures in Sport	Ginn
Reed	*The Earth for Sam	Harcourt
Reed	*The Stars for Sam	Harcourt
Petersham	*Story Book of Corn	Winston
Petersham	*Story Book of Iron and Steel	Winston
Robinson	*Beasts of the Tar Pits	Macmillan
Sabin	*Gold Seekers of '49	Lippincott
Salten	*Bambi	Simon
Schmidt	*New Land	McBride
Schultz	*Alder Gulch Gold	Houghton
Seton	*Two Little Savages	Grosset

<i>Author</i>	<i>Title</i>	<i>Publisher</i>
Seton	*Wild Animals I Have Known ..	Grosset
Siple	*Boy Scout with Byrd	Putnam
Starr	*American Indians	Heath
Stong	*No-Stitch: the Hound	Dodd
Theisen & Leonard	*Open Spaces	Macmillan
Townsend	*Camping and Scout Lore	Harper
Villiers	*Whalers of the Midnight Sun	Scribners
Wallace (ed. by Bessey)	*The Boys' Ben Hur	Harper

GRADE SIX

Bachman	*Great Inventors and Their Inven- tions	American Book
Corney & Dorland.	*Great Deeds of Great Men	Heath
Cottler	*Champions of Democracy	Little
Cottler & Jaffe . .	*Heroes of Science	Little
Cottler & Jaffe	*Map Makers	Little
Darling	*Baldy of Nome	Penn
Darling	*Navarre of the North	Doubleday
De Kruif	*Microbe Hunters	Blue Ribon
Drummond	*Monkey That Would Not Kill ..	Dodd
Floherty	*On the Air	Doubleday
Floherty	*Moviemakers	Doubleday
Floherty	*Guardsmen of the Coast	Doubleday
Floherty	*Fire Fighters	Doubleday
Floherty	*Board the Airliner	Doubleday
Gillis & Ketchum..	*Our America	Little
Kelly	*Egypt and the Holy Land	Black
Lownsbey	*Lighting the Torch	Longmans
Morgan	*Messenger to the Pharaoh	Longmans
Munroe	*Flamingo Feather	Harper
Nathan & Ernst . .	*Iron Horse	Knopf
Persing & Leary . .	*Adventure Bound	Harcourt
Rice	*Mrs. Wiggs of the Cabbage Patch	Appleton
Sperry	*All Sails Set	Winston
Starbuck	*The High Trail	World
Stevenson	*The Black Arrow	Scribner
Swift	*Little Blacknose	Harcourt
Terhune	*Lad, A Dog	Dutton
Theisen & Leonard	*Heroic Deeds	Macmillan
Van Loon	*Ancient Man	Liveright
Wadsworth	*Paul Bunyan and His Great Blue Ox	Doubleday
Wiggin	*Rebecca of Sunnybrook Farm	Houghton

APPENDIX C

LIST OF PUBLISHERS AND THEIR ADDRESSES

The following list contains, in alphabetical order, the names and addresses of the publishers whose books and tests have been mentioned in this volume. Several of the publishers have branch offices in large cities.

American Book Co., 88 Lexington Ave., N.Y.C.
American Education Press, 400 S. Front St., Columbus, Ohio
American Library Association, 520 N. Michigan Ave., Chicago, Ill.
American Optical Co., Southbridge, Mass.
D. Appleton-Century Co., 35 W. 32nd St., N.Y.C.
W. J. Black, Inc., 330 W. 42nd St., N.Y.C.
Bobbs-Merrill Co., 724 N. Meridian St., Indianapolis, Ind.
Bureau of Publications, Teachers College, Columbia University, N.Y.C.
California Test Bureau, 3636 Beverley Boulevard, Los Angeles, Calif.
Coward, McCann, Inc., 2 W. 45th St., N.Y.C.
Thomas Y. Crowell Co., 432 Fourth Ave., N.Y.C.
Cupples & Leon Co., 470 Fourth Ave., N.Y.C.
John Day Publishing Co., 386 Fourth Ave., N.Y.C.
Dodd, Mead & Co., Inc., 443 Fourth Ave., N.Y.C.
Doubleday, Doran & Co., 14 W. 49th St., N.Y.C.
Duffield & Green, Inc. See Dodd, Mead & Co.
E. P. Dutton & Co., Inc., 286 Fourth Ave., N.Y.C.
Educational Publishing Corp., LeRoy Ave., Darien, Conn.
Educational Test Bureau, 3433 Walnut St., Philadelphia, Penn.
Farrar & Rinehart, Inc., 232 Madison Ave., N.Y.C.
Follett Publishing Co., 1255 S. Wabash Ave., Chicago, Ill.
Garrard Press, 119 W. Park Ave., Champaign, Ill.
Ginn & Co., 15 Ashburton Place, Boston, Mass.
Grosset & Dunlap, Inc., 1107 Broadway, N.Y.C.
Keystone View Co., Meadville, Penn.
Alfred A. Knopf, Inc., 501 Madison Ave., N.Y.C.
Laidlaw Brothers, Inc., 76 Ninth Ave., N.Y.C.
J. B. Lippincott Co., 227 South 6th St., Philadelphia, Penn.
Little, Brown & Co., 34 Beacon St., Boston, Mass.
Liveright Publishing Co., 386 Fourth Ave., N.Y.C.
Longmans, Green & Co., 55 Fifth Ave., N.Y.C.
Lyons & Carnahan, 2500 Prairie Ave., Chicago, Ill.
The Macmillan Co., 60 Fifth Ave., N.Y.C.
Macrae-Smith Co., 1712 Ludlow St., Philadelphia, Penn.
Robert M. McBride & Co., 116 E. 16th St., N.Y.C.
A. C. McClurg & Co., 333 E. Ontario St., Chicago, Ill.
McLoughlin Bros., Inc., 74 Park St., Springfield, Mass.
Minton, Balch & Co., 2 W. 45th St., N.Y.C.

William Morrow & Co., Inc., 386 Fourth Ave., N.Y.C.
Thomas Nelson & Sons, 381 Fourth Ave., N.Y.C.
Newson and Co., 73 Fifth Ave., N.Y.C.
Noble & Noble, Publishers, Inc., 100 Fifth Ave., N.Y.C.
Oxford University Press, 114 Fifth Ave., N.Y.C.
Penn Publishing Co., 925 Filbert St., Philadelphia, Penn.
The Platt & Munk Co., Inc., 200 Fifth Ave., N.Y.C.
Psychological Corporation, 522 Fifth Ave., N.Y.C.
Public School Publishing Co., 509 N. East St., Bloomington, Ind.
Rand, McNally & Co., 536 S. Clark St., Chicago, Ill.
Peter Reilly Co., 133 N. 13th St., Philadelphia, Penn.
Reynal & Hitchcock, Inc., 386 Fourth Ave., N.Y.C.
Thomas S. Rockwell Co. See Follett Publishing Co.
Row, Peterson & Co., 1911 Ridge Ave., Evanston, Ill.
Saalfield Publishing Co., Saalfield Square, Akron, Ohio
Scott, Foresman & Co., 623 S. Wabash Ave., Chicago, Ill.
Charles Scribner's Sons, 597 Fifth Ave., N.Y.C.
Silver, Burdett & Co., 45 E. 17th St., N.Y.C.
Simon & Schuster, Inc., 386 Fourth Ave., N.Y.C.
C. H. Stoelting Co., 424 N. Homan Ave., Chicago, Ill.
University of Chicago Press, 5750 Ellis Ave., Chicago, Ill.
University of Minnesota Press, Minneapolis, Minn.
Viking Press, Inc., 18 E. 48th St., N.Y.C.
Harr Wagner Publishing Co., 609 Mission St., San Francisco, Calif.
George Wahr, Publisher, Ann Arbor, Michigan
Webster Publishing Co., 1800 Washington Ave., St. Louis, Mo.
World Book Co., Yonkers-on-Hudson, N.Y.

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